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CONTENTS.

	PAGE.
EDITORIALS :	
Trouble Brewing in the Western Steel and Iron Rail-Mills	209
The Revolt of the India Rubber Manufacturers	209
Useless Silver and Gold Mills	209
The Production and Consumption of Steel Rails	209
The Combustion of Carbon at High Temperatures	210
The Howland Ore-Grinder, Amalgamator, and Riffles	211
The Mineral Regions of Southern New Mexico	212
Geological Age of the Lake Valley Mines of New Mexico	214
The Future of Mexican Railroad and Mining Enterprises	214
The Annual Report of the Director of the Mint	215
NOTES :	
The Microphone and Fire-Damp	213
A Visit to the Works of Messrs. Ledoux & Ricketts	215
GENERAL MINING NEWS :	
Arizona	216
GENERAL MINING NEWS :	
California	216
Canada	216
Colorado	216
Dakota	217
Mexico	217
Michigan	217
Montana	217
Nevada	217
New Mexico	217
Utah	217
Mineral Patents Granted by the United States Land-Office	217
New Companies	218
Patents Granted by the United States Patent-Office	218
FINANCIAL :	
Gold and Silver Stocks	218
Copper Stocks	219
IRON MARKET REVIEW	220
METALS	221
BULLION MARKET	222
COAL TRADE REVIEW	222
STATISTICS OF COAL PRODUCTION	222
FREIGHTS	—
Advertisers' Index	x

THERE is trouble brewing in the Western steel and iron rail-mills and in the Cincinnati iron-works. In the former, the employers demand a reduction in wages of 20 per cent, to meet a declining market, while the representatives of the local lodges of the Amalgamated Association decline to concede more than 12½ per cent. Another meeting is to be held at Chicago on the 1st of November. In the Cincinnati iron-mills, the men have twice struck, and are now, it almost seems, on the eve of another, unless the manufacturers yield points to which they are entitled under the contracts made.

THOSE of the manufacturers of India rubber goods, who must partially or entirely use Para rubber, are trying to revolt against a "corner" which the principal importing firms have contrived to form, and by which they have succeeded in running up the price to $1.25 per pound. The manufacturers have held a meeting to discuss the situation, and after the presentation of a number of schemes clearly impracticable, they have appointed a committee to consider the advisability of closing the factories, and thus break the combination formed against them. The mining and metallurgical industries, which are extensive consumers of rubber goods, will watch the contest with interest. Their sympathies are naturally with the manufacturers, who we hope will succeed.

THE great activity displayed during this year in the development particularly of the copper resources of Arizona and New Mexico has unfortunately been accompanied to some extent by the same errors which in earlier days led to the construction of so many useless silver and gold mills. There are even now on record quite a number of instances of enterprises wrecked by the premature construction of smelters, and an earnest word of warning may suffice to prevent many from falling into he same error. There are a number of causes why the danger of failure by starting into smelting operations too early is exceptionally great. Above all, it is a fact that few realize how difficult it is regularly to supply from a newly-opened mine, every day, from twenty to forty tons of ore and fluxes, and at the same time insure a steady supply of fuel. We know of instances where a mere prospect, very promising, it is true, was supposed to warrant the erection of a smelter. A few weeks sufficed to exhaust the available ore-ground, and both mine and furnace are idle. Undoubtedly it is a great temptation to make an effort to turn available ore into marketable bullion ; but we believe that the present tendency of investing capital in works, rather than in the development of the mines, is doing great harm to a promising industry, and, unless checked, will throw discredit on Western copper mining as an investment.

There is another circumstance which has retarded and is still retarding progress, and which is too lightly considered. Copper smelting is a business comparatively new in this country, particularly under the conditions under which it must be carried out in the West. The number of men specially trained in this branch of metallurgy is limited, and the few who are skilled copper smelters are hampered in their work by the impatience for results on the part of those who are interested in the venture. Copper smelters of experience are not to be found as abundantly in the West as men who are able to get the best work out of a gold or silver mill at a minimum cost. Every man, from the manager to the roustabout, must be trained to his work. It may seem an easy matter to shovel coke and ore into the top of a furnace and allow the black copper and slag to run out at the bottom. But to search for fluxes and arrange their proportions in such a manner as to make black copper or matte with a minimum expenditure for very costly fuel and a heavy labor and repair account, is quite another matter. We know of a case where a company was brought to the point of ruin because the person in charge insisted upon using a material as a flux, which, if it had been copper ore, would itself have required fluxing. An experienced engineer, on examining the work, at once detected the cause of failure, rejected the "flux," substituted another, and turned the tide of disaster. Our Western copper mining companies should devote themselves to developing their mines before they put up smelters ; and when they are in a position to supply the latter steadily with ore, secure the services of men who are able to run their smelter, when they have got it.

THE PRODUCTION AND CONSUMPTION OF STEEL RAILS.

The steel rail industry has always attracted particular attention in this country because it has developed with such wonderful rapidity, because it has been impressed in such a striking manner with American mechanical genius, and because it has enjoyed such unparalleled prosperity in some periods of its growth. Recently steel rails have been a subject of much anxiety, because of the steady and heavy decline in values which in almost all other branches of the iron trade have remained nearly stationary for exceptionally long periods. From $57@$60 per ton, ordinary sections, at Eastern mill, they have fallen to $44@$46 in nine months, and have at one time sold as low as $42. There are few trades in which special circumstances so favor an examination of its status by statistics as the rail trade. Not only have we very accurate statistics of production, through the labors of Mr. JAMES M. SWANK, Secretary of the American Iron and Steel Association, but we can also estimate with some show of authority current consumption. Of course, the price is affected by questions outside of current supply and demand, at times being influenced, for instance, by a general disposition on the part of buyers to hold off, or eagerness on their part to make engagements for delivery for requirements in the far future. The views held by buyers or sellers one way or the other generally tend to exaggerate the natural conditions, and it is, we believe, such a period which we have passed through recently. The prevailing opinion appears to be, that there is a very serious over-production, and a superficial examination of the situation might confirm that view. We believe, however, that a careful review of the statistics affecting the trade will show that it is not so.

By adding the quantities of rails imported and the figures for the production, as returned by Mr. SWANK, we can arrive at a fairly approximate estimate of the apparent consumption. It is true that we have no knowledge of the stocks in makers', importers', and consumers' hands. On the whole, the fact that they have to be neglected will make the fluctuations in the consumption appear more violent than they have in reality been. The main difficulty presented in trying to arrive at a fair estimate of the consumption in former years, with the purpose of drawing conclusions for the future, lies in the apportionment of the apparent consumption between the demand for renewals and for new construction. Both, of course, are subject to variations dependent on the prosperity of the railroads and the business interests of the country in general. This is particularly the case with the demand created by the building of new lines, while the supplies for repairs of track are less irregular in quantity. The former might be closely estimated, if we possessed some reliable information on the mileage of sidings, second track, etc.; but the statistics on this subject,

gathered by the Messrs. POOR for their Manual, show some remarkable and unaccountable variations from year to year. From present statistics, the accessory tracks add as much as 25 per cent to the length of road on an average in the United States, and therefore at least 20 per cent must be added to the number of miles of new road built every year to get at the actual mileage of track laid.

The quantity of rails required per mile of track varies within very wide limits, it being, according to the *Railroad Gazette*, 61½ short tons for narrow gauge to 99 tons for standard roads; 95 tons may be accepted as a fair average, and we therefore find the consumption for new roads by adding 20 per cent to the annual increase of mileage reported, and multiplying it by ninety-five. The figures thus obtained, deducted from the total apparent consumption, will yield the quantities absorbed by renewals and repairs:

Year.	Increase of mileage.	Total consumption.	New roads.	Renewals.
1867	2,449	627.157	279,200	347,957
1868	2,979	756,795	349,600	417,095
1869	4,615	906,749	526,100	380,649
1870	6,070	1,019,153	692,000	327,253
1871	7,379	1,341,434	841,200	500,234
1872	5,878	1,530,850	670,100	860,750
1873	4,107	1,148,849	468,200	680,649
1874	2,105	837,724	240,000	597,724
1875	1,712	810,770	197,900	612,870
1876	2,712	879,916	309,100	570,816
1877	2,281	764,744	260,000	504,744
1878	2,087	882,695	306,300	576,395
1879	4,721	1,157,420	538,200	619,220
1880	7,174	1,752,526	817,900	934,626
1881	9,358	2,230,422	1,067,000	1,163,422
1882	12,000	2,275,000	1,375,000	900,000

It will be noted that in general the fluctuations in the demand for rails for renewal are much less than those for the building of new lines of traffic. From the manner in which they are computed, the absence of any data on the quantities of stocks in the country and the apparent irregularity of the total consumption resulting therefrom have the effect of rendering the changes from year to year more abrupt than they have in reality been. It must be remembered, too, that the rails which have apparently gone into consumption in one year have been partly made for delivery in the next. The demand for renewal is one of exceptional interest, because it is the one upon which our mills must rely as furnishing the annual minimum for which the railroads of the country must call upon them. As already noted, bad times will of course affect it, but in a much less degree than the inquiry for material for new construction, which experience has shown varies within very wide limits. A question which seriously affects the problem is, how rapidly this demand will be affected by the longer life of steel rails. We know that this must soon be seriously felt, because, according to Mr. POOR'S estimates, there are now in the United States 49,063 miles of steel track, over which, according to the *Railroad Gazette*, at least two thirds of the traffic of the country passes. It is estimated that of the 13,550,000 net tons of rails in use at the beginning of this year on the railroads of the United States 5,575,000 tons are steel, and the rest, 7,975,000 tons, are iron. This, it will be seen, leaves a large field for steel; but as it probably will be distributed over a number of years, it seems likely that the climax for renewal has been nearly reached. The long-expected time when iron rails will be practically crowded out of the market has now come, and for months at the low prices of steel, iron rails have been almost unsalable. This point very considerably affects the question of an outlet for our present enormous production of steel rails.

In our table given above, we have added an estimate for the consumption of the present year. As will be noticed, it is based upon an estimated mileage of new roads this year of 12,000 miles. This will not appear excessive when we state that the record of the first nine months of this year, according to the *Railroad Gazette*, was 7285 miles against 4774 miles during the same time in 1881. Making allowances for the incompleteness of the returns, proved by the fact that the full statistics of 1881 were 9358 miles, though the *Railroad Gazette* showed only 4772 miles in nine months, our estimate will be accepted as probable. These 12,000 miles of road would require 1,375,000 tons of rails. We estimate the renewals only at 900,000 tons, because the requirements for that purpose during the last four years of railroad prosperity have been so heavy that probably less is doing in this direction. This makes a total probable consumption of 2,275,000 tons of iron and steel rails. Last year, we made 1,330,302 net tons of steel rails, including 77,173 tons rolled from imported blooms, and we imported 249,309 tons, a total of 1,579,611 tons. In 1881, our Bessemer works had a capacity of 1,750,000 tons of ingots. Now their capacity is 2,250,000 tons of ingots. Deducting rails from imported blooms, and assuming that the proportion of ingots to rails has remained the same, and allowing 25,000 for the quantity of rails rolled in this year from imported blooms—a business which has declined—we reach a probable production this year of about 1,700,000 tons. To this must be added the imports this year, aggregating 106,000 tons up to the 1st of August. As it is not likely that at present prices any more steel rails will be sent to us, we have a total supply of 1,885,000 tons. This leaves only 450,000 tons to be supplied by iron, and we do not believe that that figure will be much exceeded, if indeed it is reached; last year, the production of iron rails was 488,581 tons, and the imports 137,013 tons, a total supply of 625,594 tons. The imports thus far are not much above 40,000 tons, and the production is not likely to go much higher than 400,000 tons. By continued low prices of steel, our mills extend their market by an amount equal to the production of possibly all but 100,000 tons of iron rails by the amount equal to the quantity of iron and steel rails and blooms imported. This is equivalent to at least 450,000 tons. A shrinkage in the demand to that extent will leave the mills in the same condition as to prices that they now are. That is to say, assuming that the quantity of rails required for renewal remains the same in 1883, the construction of 4000 miles of new road less, or a falling off to 8000 miles, will afford our present steel-works a market for their entire product at present prices, because it would simply crowd out manufacturers of iron rails and importers of iron and steel rails and blooms. With the price of rails at $44@$45, it is true, the profit to some of the mills is small; but as it is still probably in most of them above the cost of production, the outlook for the Bessemer steel rail-mills is not such as to call for the suspension of work of any of them, and their product will be taken care of next year, unless the building of new roads falls off so much that not even 8000 miles are added to the mileage of the country. With the good business which most of our great lines are doing, and with some very large projects actually on hand, this does not seem likely.

THE COMBUSTION OF CARBON AT HIGH TEMPERATURES.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: The theory developed by Mr. F. Mattes, of Scranton, in the ENGINEERING AND MINING JOURNAL, coincides with my own on the combustion of carbon, so far as the main points are concerned. I believe that I may say that Mr. Mattes would hardly have made his objections to my paper on the subject, if he had read it in full. I propose, therefore, to summarize them as briefly as possible.

I have quoted a number of passages from works on metallurgy in which expression is given to the opinion that at higher temperatures momentarily a greater quantity of carbonic acid and a smaller quantity of carbonic oxide are formed than at a lower heat, even if there be a sufficient quantity of carbon for the formation of carbonic oxide. It is asserted even that carbonic acid can only be formed at elevated temperatures. A number of the passages quoted by me are of older date, and their authors may have changed the opinion then held: others, however, are recent. That theory is wrong; and it did not seem as superfluous to me to disprove it as Mr. Mattes seems to think

Elevated temperature aids the chemical affinity between carbon and oxygen. From this it may be concluded that, in the presence of a sufficient quantity of carbon, the same quantity of oxygen will burn a larger quantity of carbon, and that more carbonic oxide will be formed and more rapidly, the higher the temperature is. The same conclusion may be drawn from the fact that carbonic acid itself oxidizes carbon at high temperatures.

In the blast-furnace, free oxygen, as well as the carbonic acid partially formed in the first moment, will disappear the more quickly the hotter the blast is. Even when the furnace is working cold, the whole of the free oxygen will finally disappear entirely, as every metallurgist knows. I have never thought of advancing any other statement; but the process of the combustion of carbon to carbonic oxide in the latter case extends over a greater area, and in the first moment copious currents of carbonic acid are generated before the tuyeres. In a gas-producer, this greater intensity of the chemical affinity by higher temperature admits of a lower layer of fuel in proportion to the temperature; by using heated air, it can be lower than when cold air is used.

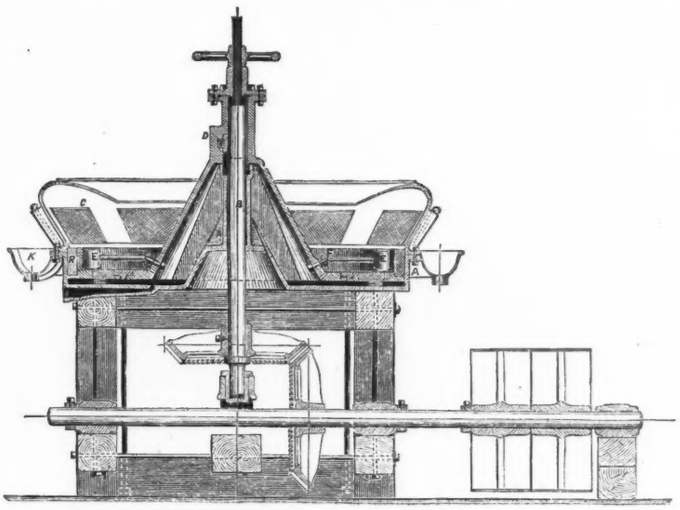
I do not believe that Mr. Mattes is correct when he says that "the superiority of charcoal over coke in the blast-furnace is due to its greater power of reducing rapidly the carbonic acid evolved in the reduction of ores." In that part of the blast-furnace where a reduction of the ores by the gases takes place, any reduction of the carbonic acid formed thereby by carbon constitutes a loss of this carbon to the blast-furnace; and if in charcoal furnaces the percentage of carbonic oxide in the escaping gases is not on an average higher than in a coke blast-furnace, in spite of the greater reducing power of the charcoal, the cause should be sought in the circumstance that in the former the temperature is lowered more rapidly upward of the tuyeres than in the coke blast-furnace, and that the reduction of carbonic acid is thereby lessened. I can not understand how a more powerful reduction of carbonic acid, produced by the reduction of the ore by carbon, that is carrying away the latter from the furnace before it has served its purpose, can lead to a saving of coal. The true object of the carbon in the blast-furnace, I take it, is to produce the heat necessary to carry out the process by combining it as rapidly as possible with the oxygen blown in, while the carbonic oxide formed then serves as the reducing agent for the iron ores. All the carbon used for the indirect reduction, either of the ore or of the carbonic acid resulting from the ore reduction, represents a loss of heat. This rapid combustion before the tuyeres, this "contraction of the zone of combustion," is promoted by hot blast, and is hampered by density of the fuel.

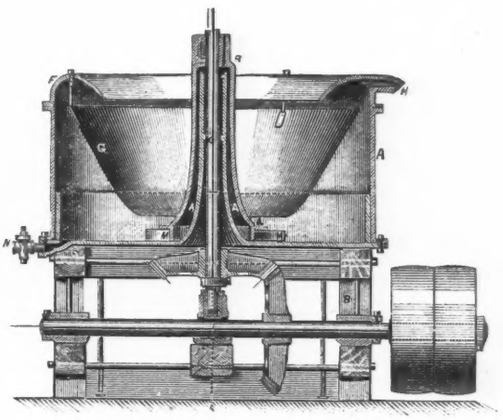
I did not carry out the experiments quoted in order to advance a new theory. Figures are often more eloquent than words, and I thought that they would aid me to remove certain vague notions about the influence of temperature upon the combustion of carbon. While I agree with Mr. Mattes that the results of the experiments might have been predicted, I had all the less occasion to make the experiment of burning carbon in an excess of oxygen, because the result has not, to my knowledge, been doubted by any body. Every fire shows that a more elevated temperature in the zone of combustion calls for a smaller excess of oxygen in order to effect complete combustion to carbonic acid. A. LEDEBUR.

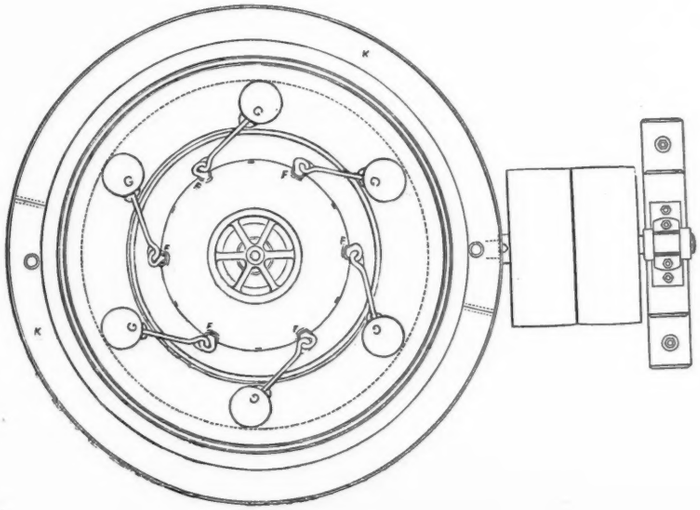
FREIBERG, SAXONY, Sept. 24, 1882.

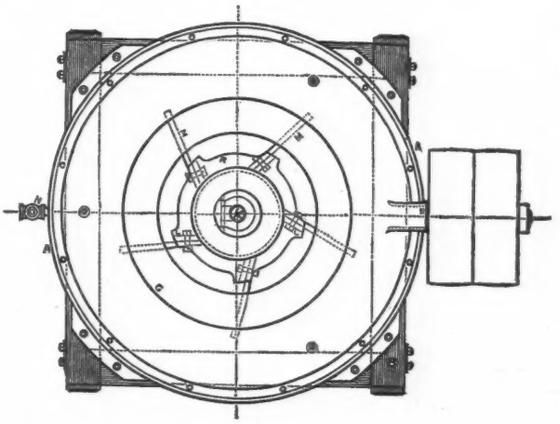
THE HOWLAND ORE-GRINDER, AMALGAMATOR, AND RIFFLES.

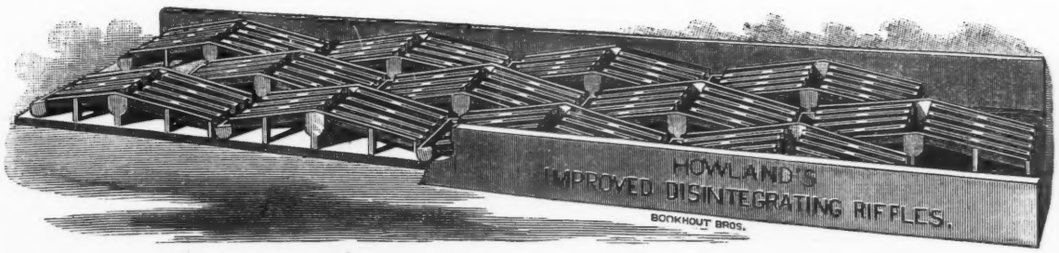
We show, in the accompanying illustrations, machinery now in course of introduction by the New York Mining Machinery Company, of this city, after the designs of Mr. W. H. Howland, who has had long experience on the Pacific coast. We have had occasion to see some of the machinery in operation; and though no data are available to warrant a statement of capacity and of wear, we are in a position to say that the machinery is well designed and carefully built. As a glance at the ground-plan of the ore-grinder will show, it is in principle an arrastra, but so modified as to make the centrifugal force of the revolving weights the grinding power, instead of their simple dead-weight, as in the arrastra. This causes the transfer of the grinding surface from the bottom to the sides, and calls for the substitution of high speed for the slow motion of the arrastra. It is, therefore, almost unnecessary to say that these modifications place the grinder as far ahead of the latter as the modern marine engine is to Watt's first machines. As will be seen by reference to our cuts, the grinder consists of a pan *A*. Through its center rises the driving-shaft *B*, upon which is keyed the gearing driven by the pulley-shaft. The latter, it will be noticed, has ample bearing. At the time of our visit, the back journal was not used. *D* is the driver, formed of a cone-shaped sleeve, keyed to the driving-shaft *B*. It is supplied with links *F*, to which the round grinding-blocks *E* are attached. They weigh 100 pounds apiece when new, and provision is made to use six of them when needed. They are dragged along the ring *R*, with a pressure against it corresponding to the centrifugal force developed by the speed. The ring is one casting, five inches high and weighing 1020 pounds. Water for wet crushing is supplied through the pipe *H*. To the pan *A* is bolted the screen-frame *C*, affording ample surface. The screens are keyed into place, and are very readily got at. The pulp is delivered into the gutter *K*. The speed at which the grinder runs is from 125 to 200 revolutions, and its total weight complete, for a diameter of pan of six feet, is 11,000 pounds. The ore should be delivered to it, crushed by rock-breaker to one inch size. It is claimed by Mr. Howland that his grinder will do the same amount as a twenty-stamp mill crushing through a sixty-mesh screen. The power required is estimated at forty horse.











Mr. Howland has also designed an amalgamator, the construction of which is shown by the accompanying illustration. *A* is a circular pan, four feet in diameter, having a central hub *A*, through which passes the driving-shaft *K*, driven in the same way as that of the grinder. Keyed to it is the cone-shaped yoke *R*, which extends to near the bottom of the pan, where it carries the steel arms *M* bolted to lugs *L*. A ring eight inches high is provided to protect the pan against wear. Running at 150 revolutions per minute, the quicksilver is forced against the shell of the pan, while the pulp which is delivered near the hub is caught by the arms and thrown against the quicksilver. The pulp then rises in a screw motion around the copper plate into a wedge-shaped space, between the pan and copper plate *G*, to the outlet above, at which point that portion that does not pass out at the spout *R* descends inside of the copper plate,

in the circular course, until it is again caught by the arms and *forced* out against the rim of the pan for another circuit. Mr. Howland proposes to use this pan for continuous working also.

Here we may also describe briefly Mr. Howland's riffle, which has been in use for three years, and is spoken well of by those who have adopted it. It certainly possesses the merit of simplicity. As shown in the accompanying engraving, it consists of a series of riffle sections, so placed as to cover the bottom of the flow of the sluice in longitudinal rows, with ends joining each other, and those of one row breaking joints with those of the adjoining row. Each casting is in the form of a ridge roof, a number of parallel slots being provided on each side, the slots on one side alternating with the ridge on the other side of the apex. The apex has a cross-channel, and at the bottom of each incline is provided a transverse hollow box. A vertical partition extends downward from the under side of the apex to the bottom of the flume, so that the heavier particles are given time in the many cross-eddies created by the construction of the riffles to fall through the slots and are stopped. These riffles are used for both hydraulic and quartz mining, with suitable modifications of the general principle, to meet the exigencies of each special case.

With a crusher preparing the ore for the grinders, and the latter delivering to an amalgamator, and the pulp from it going over the riffles, Mr. Howland has worked out an entire mill plant which he proposes to substitute for the ordinary stamp-mill as now generally built. The grinder, in connection with the riffles, is to be used for concentrating ores.

THE MINERAL REGIONS OF SOUTHERN NEW MEXICO.*

By B. Silliman, M.A., M.D., New Haven, Conn.

(*Concluded from page* 200.)

The enumeration of the species of minerals, at present found at Lake Valley, includes the following, namely: Metallic silver; chloride of silver, horn-silver or kerargyrite; embolite, chloro-bromide of silver; and silver-bearing lead, both carbonate and sulphides; galena, and carbonate of lead, both rich in silver; vanadinite, or vanadate of lead, of a light yellowish color, in minute hexagonal prisms, and without arsenic; specular or red hematite, and brown iron ore; the former most abundant and the chief gangue ore associate of the silver chlorides; both highly valuable as fluxes in smelting the ores; pyrolusite, manganite, wad or psilomelane; quartz, as the gangue of embolite, and in places the cap-rock of the ore-body; variety, flint and chert; also, in small quantity, drusy crystals of quartz, with vanadinite; carbonate of lime, chiefly as gray limestone, being the heavy-bedded capping to the ore-body, but found also coating silver chlorides in the masses of ore, and likewise, as crystallized calcite; ankerite, or lime, iron, manganese carbonate; and apatite, or phosphate of lime (rare).

Exploration will probably bring to light other species, but I saw no others in my inspection of the mines. The result is surprising from its simplicity, and the absence of offensive smelting minerals like zinc, arsenic, antimony, etc.

A capping of compact flinty quartz takes the place of the above-mentioned heavy-bedded lime-rock, covering the silver-bearing iron ore in the same manner as does the lime-rock. This siliceous capping might very properly be called "vein-stone," as it carries a valuable quantity of silver in the form of embolite, or chloro-bromide of silver, the greenish color (yellowish-green) of this ore being quite evident to the mineralogical eye. It is a milling ore, often quite rich in silver. The seams of iron ore in the limestone, as above described, often lead into large bodies of rich silver ore, when followed by mining explorations, over which the heavy-bedded lime-rocks form a capping. These ore-bodies vary very much in extent, depth, and thickness. The largest body of this kind, explored at the time of my visit, was that reached by what was known as the "joint shaft," between the Plata and Grande companies' ground, on the line between the Stanton and Lincoln claims.

The character of these very rich ores is absence of any siliceous gangue, the whole mass being a loosely aggregated congeries of crystals of silver chloride (horn-silver) with carbonate of lead, the whole mass stained deeply throughout with red iron oxides (hematite), and more rarely black with manganese oxides. It is a splendid smelting ore, but far too rich for milling. Only the lower grades of cherty and ferruginous ores, under 100 ounces to the ton, will be proper material for the mill.

I cite the following assays made at the mines, October 18th, 1881, on cherty samples taken by me from the west drift of west cut near surface: Chert with embolite, silver per ton, 240 ounces; flint with embolite, silver per ton, 186 ounces. Other samples of siliceous croppings from the same cuts, with native silver, lead carbonates, and embolite, gave me respectively 490 ounces, 1460 ounces, and 164 ounces of silver to the ton. Iron ore, with embolite, taken 500 feet from northeast corner of Stanton claim of Sierra Plata at surface, gave me 400 ounces silver to the ton. Every sort of mineral in these croppings gave silver on assay. A mass of brilliant crystals of pyrolusite (manganese ore) gave me forty-five ounces silver per ton, and pieces of croppings, "believed barren," gave from nine ounces upward.

1. A sample sack, taken from the dump of ore extracted from shafts 3 and 4, being a very ferruginous ore mixed with carbonate of lead, yielded, lead, 32·4 per cent, and 129·42 ounces of silver per ton.

2. A sample sack, taken from the bottom of the south drift, west shaft, gave, lead, 19·2 per cent, and silver 281·33 ounces per ton: this was somewhat siliceous.

3. Carbonate ore, selected dump, slightly siliceous, from east drift, gave 28 per cent lead, 415·62 ounces silver.

4. A sample sack of rich chloride and ferruginous ore, with manganese, taken from face of the east drift of the "joint shaft" of Plata and Grande, gave, lead, 20 per cent; silver, 10,289·69 ounces.

In all these samples, the lead is sufficient in quantity to bring the ores within the smelting classification of lead ores, the lead being almost entirely as carbonate, derived, beyond doubt, from the transformation of galena.

Ninety-eight assays in April, May, and June, 1882, taken from the daily workings in sinking the Strieby shaft and drifting, gave an average of 110½ ounces of silver per ton.

Messrs. Mathey & Riotte, of New York Metallurgical Works, have kindly supplied me with the results of milling some lots of the Sierra mines ores, forwarded to them from the mines at the time of my visit. These tests were made by free-milling amalgamation, both with and without the use of chemicals. These results are as follows, namely:

Ore from Sierra Grande, without chemicals, yielded	79	per cent of assay.	
Ore from Sierra Grande, with chemicals, yielded	76	"	"
Ore from Sierra Plata, without chemicals, yielded	54	"	"
Ore from Sierra Plata, with chemicals, yielded	75	"	"
Ore from Sierra Bella,* without chemicals, yielded	57	"	"
Ore from Sierra Bella, with chemicals, yielded	68½	"	"

These ores may, in one sense, all be properly called free-milling ores, but practically they divide themselves into two groups, namely:

1. Smelting ores. 2. Milling ores.

To the first group belong all the rich silver-lead ores, carrying from twenty to thirty per cent of lead as carbonates, and from 100 ounces of silver to 10,000 ounces, and even more than this. Lead is all lost in milling, but in the smelting ores it is paid for by smelters, if present up to the limit of twenty per cent. The combination of ores in the Sierra mines makes the best smelting mixture possible for rapid and economical work, without loss. No zinc, copper only in feeble traces, no arsenic or antimony, and little silica, while iron, manganese, and lime act as fluxes. The best milling results possible on these ores involve a loss of from twenty-five to forty per cent in silver value, while the smelter pays for the entire silver value, less three ounces; and the schedule price of $20 per ton for smelting forms a small item in the returns, on ores of many hundred ounces of silver value. The few milling tests above cited sustain this statement as far as they go. Even on ores of 100 ounces value, smelter's charges, less weight, are under the milling losses. Experience at Silver Cliff and elsewhere has shown that manganiferous ores which carry silver pass through the mill without amalgamating, and the silver value is found in the tailings. The milling ores of the second class will, therefore, in this case, embrace, properly speaking, only the siliceous ores, and some of the ferruginous ores carrying chloride and chloro-bromide of silver. The cherty ores particularly, are unsuited for smelting, and must be treated in mills, except where they contain, as some of them do, silver to the extent of several hundred ounces.

For immediate use, the Pueblo Smelting-Works, of Messrs. Mather & Geist; the works of the Boston & Colorado Smelting Company, at Argo, near Denver; and the works at Omaha and Leadville, offer every facility, with the advantage of competing rates. For the future, it is quite possible that smelting-works on a considerable scale may be erected at Socorro, where many circumstances appear to point to a prosperous development in the smelter's art.

From what has gone before, it will be understood that the Lake Valley mines belong to the same category with the Leadville, and probably the Eureka and other deposits in the older limestone formations, and that they are not fissure-veins. That these deposits may equal or exceed in value and permanence any form of silver deposit, can not be denied, in view of mining experience of a like nature the world over. The opinion is well-nigh universal in favor of a fissure-vein for permanence; but the history of mining adventures is full of examples of the fact, alas! so common, that while the vein remains, the character of *Hamlet* has been left out of the play! What proportion, for example, of all the vast area in extent and in depth, which the last twenty odd years have opened upon the Comstock, has proved ore-bearing? The bonanzas, as seen in a projection of that famous fissure, have been the rare exception. At Lake Valley, the ores are of exceptionally high tenure in silver, and, compared with Leadville, Eureka, and Little Cottonwood, are low in lead. In the simplicity of their mineralogy and metallurgy, the Lake Valley ores, as already remarked, are exceptional. It remains to be seen whether, on deeper exploration, these conditions remain unchanged.

The absence of hydrated species is remarkable. All the iron exists as specular iron, and the same is true of the manganese. This fact indicates the probable existence of a temperature adequate to prevent the existence of limonite or hydrous peroxide of iron. This temperature might be supplied by superheated vapor of water, escaping with other heated gases, from the deep. The chief interest of such a speculation in this case is the probability implied, that we may look deeper for ore without touching bottom.

The origin of the silver is probably connected with the masses of trachytic rock, propylite, rhyolite, etc., which exist as eruptive masses and dikes in this region. As yet, the explorations have only partially developed the extent and position of these eruptive rocks. It is probably from them that the silver has been derived. And the same chemical agency which has dissolved the silver from its former condition in these, has set free the silica, now found in the cherty croppings, and the iron and manganese ores associated with them.

These cherty croppings are particularly strongly developed. On the high ground of the Apache, some 500 feet above the rich ores of the Plata and Grande, or of the Sierra Bella, associated with the Apache croppings, manganite occurs abundantly, and some very rich silver chlorides. But as yet almost nothing has been done toward the development of this most considerable body of elevated mineral ground.

POSTSCRIPT, JULY, 1882.—The writer made a second visit to the Sierra mines in June last, and found some important changes in the interval, since his former visit, namely:

A very complete and well-constructed silver mill, of twenty stamps, with space and power for forty, has been constructed, and was put in successful operation during the month of June. It is provided with the new system of continuous discharge, devised by Mr. Boss, of San Francisco, designed to save the labor of handling the pulp by human labor, from the tanks to the amalgamating pans. This system is said to have worked well in other cases where it has been tried, and it certainly has the merit of simplicity and economy. The water for the supply of this mill is laid on by a line of wrought-iron pipe from the pump station near the lake, about three miles distant. For the actual output in the mill, and the loss of silver in the tailings, we must wait the results of experience.

Our present concern is chiefly with the developments on the ore-bodies

* Abstract of a paper read at the Washington Meeting of the American Institute of Mining Engineers.

* From the Columbia claim, very ferruginous ores, full of chloride of silver and no lead

by explorations in depth. Of these, there are two or three which are of special interest, from the light they shed upon the whole district.

(1.) On the Bella, the claim called the Strieby has been opened by a shaft sunk on the dip of the ore-body, which has at this point an angle of about 30 degrees S. E. The hanging-wall has a smooth and continuous contact surface, with a clay parting above the ore-body, which has a thickness of about five feet of mixed carbonates of lead, with silver chloride stained deep brown by iron-manganese oxides; the average assay value of which has been over 100 ounces per ton. The dip of this ore-body has gradually flattened, until at about 180 feet on the slope, where water has for the present arrested farther progress in sinking, its inclination is not more than 12 or 15 degrees. The underlying or foot-wall, of limestone, of this ore channel is less well defined than the upper wall. It exposes near the bottom and in the drifts a compact rhyolite, well sprinkled with minute crystals of pyrite. The important relation of these intruded porphyritic masses to the silver deposits has already been mentioned, and need not be elaborated here.

This important exploration has exposed a body of ores variously estimated at from 12,000 to 15,000 tons, and has indicated the position for a downright shaft, which is to be sunk immediately, for the farther prosecution of the work, the unwatering of the ore ground, and the economical hoisting of the ore to the surface.

(2.) Another similar exploration has been commenced near the southwestern limit of the Plata and Grande ground. Here a cross-cut passes through about twenty-five feet of ore, black with manganese and iron, but well charged with silver chlorides, and cutting the underlying lime-rock. A shaft, sunk downright in this black ore mass, at the depth of about thirty feet, struck the same underlying lime-rock, and is now sinking at an angle of about 70 degrees in the ore-body. The strike of this ore-body is the same as that in the Bella (S. E. or N. W.), but from its position being too far to the west of the Strieby shaft, it can hardly be the same ore-body, and it is yet too soon to say with certainty that it will repeat the experience of the Strieby, but such is its present appearance.

From these explorations, it appears, so far as now seen, that there are probably three distinct zones of ore-bearing ground, namely, those on the Plata and Grande, that already described as seen in the Strieby shaft, and, lastly, that laid open by the so-called Columbia shaft, which is in advance of the Strieby, to the southeast, and where the first rich ores were extracted by the former owners. The value and necessity of continued exploration are thus clearly shown. And this obvious truth has lately received a most important confirmation, as the result of a well-directed and intelligent work, which was already in progress last autumn, but which has only very recently come to a successful issue. I allude to the work undertaken by other parties, beyond the limits of ownership of the silver companies, upon ground known as the Hopeful.

The Hopeful Shaft.—Rising easterly over the dividing ridge of the valley, in which are found the basset edges of the fossiliferous beds already described, we find the Hopeful location, distant from 2000 to 2500 feet from the Strieby shaft, with a gentle surface slope to the southeast, near the southwest angle of this location. Mr. H. H. Sawyer and his associates commenced last autumn a downright shaft, expecting to cut the ore-body of the Columbia in depth. It was a bold undertaking, considering how little was then known of the nature and extent of the Lake Valley ore-deposits, and naturally was regarded with much incredulity by all to whom the general structure of the region was an enigma. The result, so far, has well vindicated the intelligence which inspired the undertaking. After sinking for more than one hundred feet through barren non-fossiliferous limestone beds, the beds of the lower carboniferous shaly limestones, full of the same fossils, already mentioned as overlying the ore-bodies, were cut and passed through; next followed the heavy-bedded limestone, overlying the "iron cap," which marks the horizon of the ore. At the depth of 155 feet, a strong flow of water prevented sinking, until a pump and hoisting apparatus can be put in place. The shaft passed through three feet of this ferruginous capping, from which, as I am informed by Mr. Sawyer, assays of from two to seventeen ounces of silver are obtained. This very interesting result appears definitely to settle the question of continuity in extent and depth of the Lake Valley ore-bodies, at least for that portion of the area thus explored. It remains now to be determined by farther prosecution of the same exploration: First. If the "iron cap" here cut covered a similar ore mass to those already found near the surface on the Plata and Grande and Bella; second. If the indications of a succession of like ore masses overlying each other is verified, such as now appear near the surface to exist as three distinct zones. The interest and importance of the solution of this question are self-evident. But as it now stands, the result already attained can not fail to stimulate similar explorations, both within the Sierra mines areas and upon the "outside claims." Already a large area of surface is covered, especially to the southeast, by such mining locations, upon which at this time no work has been done.

So far as exploration has gone, no faults or dislocations have been discovered in the Lake Valley region; but it can hardly be expected that such disturbances will not be encountered, probably not to the same extent as at Leadville, since the whole area surrounding Lake Valley is formed from the lower foot-hills of the Mimbres and Black ranges, and has not felt the stress of a great upheaval of central mountain masses, which have thrown the strata at Leadville into such complicated foldings and faultings, with an elevation of over 10,000 feet. Compared with the Leadville region, Lake Valley is an area relatively free from such disturbances.

As Lake Valley, especially the areas of the Sierra mines, is at the surface a dry region, quite devoid of surface water, it is an interesting fact that an ample flow of water should be found at so moderate a depth as that now reached (155 feet) in the Hopeful shaft, where 180 buckets per hour did little to lower the level of the water in the shaft. The value of such a water supply in a dry region is considerable, but its significance as an evidence of extended areas of drainage, and inferentially of ore ground also, is of more importance yet.

It remains yet to speak, very briefly, of some other regions of Southern New Mexico, and especially of the Negretta or Black Range.

The Black Range.—This mountain range is on the west side of the Rio Grande, about fifty miles from that stream, and it extends southwardly from a point nearly opposite Socorro across Socorro County, and into the adjoining county of Grant, at least one hundred miles. No good map of this portion of New Mexico exists, and the Negretta or Black Range (so called because of the dark-colored firs which cover it) is often confounded with the Mimbres Mountains. We approached this range from Engle, a station on the Atchison, Topeka & Santa Fé Railroad, fording the Rio Grande near old Fort McRea, and thence crossed the subordinate Cuchillo Negro Range, about half-way to Grafton, a mining settlement on the eastern flank of the Black Range, about 9000 feet above tide. The whole of this region was considered so unsafe, both from hostile Indians and worse white banditti (called "Rustlers"), that it was thought necessary to provide a military escort, which, together with the guns carried by the party, gave us twenty-five Winchesters and two mounted scouts perfectly familiar with the country. No difficulty occurred, however, nor was any likely to happen to so strong a party.

The Black Range is intersected by powerful lodes carrying gold, silver, copper, zinc, and lead. Hagan's Peak, a prominent landmark, which forms the apex of the range, appears to be a center from which radiate numerous veins. One of these, known as Hagan's Lode, is all taken up for over two miles by successive locations, the ores of which are chiefly valuable for silver, with a little gold and some yellow copper, in a cross-grained crystalline and cellular quartz, the vein being generally very large; for example, the Midnight samples gave me silver 15, 43, and 118 ounces, from three portions of the vein, a trace of gold, and under five per cent of copper. The Colossal had 127 ounces of silver, half an ounce of gold, and about seven per cent of copper. The Monte Cristo yielded silver 168 ounces, gold one ounce, with under one per cent of copper. These are obviously all free-milling ores, the silver existing chiefly as chloride: galena and lead salts are rare.

This vein is believed to extend to the north much farther than above indicated, covering in all a stretch of many miles. But no competent observer testifies to the truth of this statement as the result of personal investigation. All I can say is, that I saw a powerful vein, which I followed for more than two miles from the town of Grafton, commencing at the Ivanhoe, and passing the Buckeye, Surprise, Alaska, Montezuma, etc., and so on, to the north, and beyond, where I followed it to the Wild Horse, it is said to maintain its course conspicuously for about five miles from the point of starting.* At the Montezuma, it was over twenty feet wide; a mass of hard quartz, with noble combs of amethystine crystals and great sub-veins of calcite included, with streaks of ore. It was developed by a shaft, sunk in the eastern porphyry, which incloses it, and the vein remained almost undisturbed for 150 feet, the depth of the shaft at that time. Samples which I collected gave about one ounce of gold and 140 ounces of silver.

This is certainly worthy of a systematic development. The gold is not visible to the eye, and the silver exists chiefly, if not entirely, as chloride.

The Ivanhoe mine is that which has given to the Black Range its chief fame. It is opened on the same vein, and so far as it has been explored, the work was done by Colonel Villette with good judgment and economy. At the time I saw it, a tunnel had been run in along the course of the lode, about 100 feet below the croppings, for a distance of between 200 and 300 feet, and a shaft sunk to the next level, 100 feet; also a winze 100 feet beyond to the same level. The vein was of remarkable interest, and at the time of my visit of exceptional value. There was a streak of black ore a few inches wide on the foot-wall, about the level of the tunnel, which was brilliant with free gold, implanted in a matrix of blackened carbonate of lead, owing its color probably to the effect of light upon the silver chloride it contained. The mineralogical character of this black zone was rather complex, vitreous and variegated copper, blue and green malachite, yellow copper, zinc-blende, calcite, cerussite, free silver, silver chloride, and gold exist in its quartz ore-gangue. Carefully prepared samples of this rich ore gave from fifty to sixty ounces of gold and 250 ounces and over of silver. This naturally gave an unwonted stimulus to speculation, which the development of the vein did not sustain. But it is nevertheless a remarkable vein, as its average quartz is good for from one to two ounces of gold, and from 100 to 150 ounces of silver. The vein is strong, varying from three or four feet to ten feet in thickness. Portions of it which I broke on the hanging-wall side were beautifully brecciated like a mosaic, showing evidently former mechanical violence, the cementing silica which bound the fragments being chalcedonic.

Much more might be said respecting the Ivanhoe and the Great Master lode, on which it is opened; but it is enough to add, from what we know of it, that systematic exploration in depth alone will develop its hidden treasures, and not the manipulation of its shares in Eastern cities. The cross-valleys or gulches which cut this great vein offer numerous points, where it may be advantageously opened by tunnels driven in on its course.

Timber abounds on the Black Range, and water exists in quantity sufficient for milling purposes. It is a region full of wild game, and was the chosen resort of Victoria, who declared that no white man should set his foot on the Negretta and live; an oath which he kept as long as he lived. Near Grafton is an old burial-ground of the Indian race to which Victoria belonged.

THE MICROPHONE AND FIRE-DAMP.—A new application of the microphone to the determination of the position of nodes and ventral segments in columns of vibrating air has been communicated to the Academy of Sciences by M. Lerra-Carpi. The microphone is mounted on an elastic membrane stretched over a little drum, and then lowered into the sounding-pipe. When the apparatus came to a node, the telephone in circuit with the microphone gave out a rumbling sound, similar to that caused by an induced current. On the other hand, when the microphone passed a belly, the sounds became very faint and rare, while at intermediate points they increased or diminished, according as the microphonic sounder was brought nearer to a node or to a belly. It is believed that the microphone may thus be made useful as a detector of fire-damp in mines. According to some observers, such explosives are always preceded by undulations too feeble to be detected by the human ear; but these latter would be revealed by a system of microphones placed at intervals through the mine.

* If the vein from Hagan's Peak to the Wild Horse location is one vein, its length is from ten to twelve miles.

GEOLOGICAL AGE OF THE LAKE VALLEY MINES OF NEW MEXICO.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I find I have, by simple inadvertence, done an injustice to my esteemed friend, Professor Cope, in the article you printed in your issue of date October 14th, which I hasten to correct. The accompanying letter, which I have this moment received from Professor Cope, makes it quite clear that he was the first who recognized the geological age of the Lake Valley mines, and he published his determination in the *American Naturalist* for August, 1881, as I was well advised. I am quite confident that I stated this fact of Professor Cope's determination, in my remarks at the Washington Meeting of the American Institute of Mining Engineers, in February of this year: at the same time, I gave the opinion of Mr. Hague. Having submitted the fossils I had myself collected in October, 1881, at Lake Valley, to Mr. Hague, it was quite proper I should cite his letter announcing his views as they appear in my paper. Being more occupied with the mineralogical and metallurgical questions there than with the paleontological, I find I have very unintentionally done scant justice to Professor Cope's earlier determination of the horizon in which these remarkable silver deposits are found, and I shall take care that the oversight is corrected in the sheets of the Transactions of the Institute, which are still open for that purpose.

NEW HAVEN, Oct. 16, 1882. Yours respectfully, B. SILLIMAN.

Professor Cope's letter, above referred to, is as follows:

DEAR PROFESSOR SILLIMAN:

I have read your reports on the Lake Valley property with interest and profit. I see the latest in the ENGINEERING AND MINING JOURNAL. So long as these reports are private, scientific ethics are not important; but as soon as they begin to appear in authoritative magazines, it is well to give credit for information derived from other sources. If credit is given at all, then it is not only well but necessary to credit the right source.

I see from your report that you credit Mr. Hague with the determination of the age of the Lake Valley limestone. You do not give the date of his determination; but it had evidently not been made at the time of our first conversation on the subject, when you asked me whether the limestone was Carboniferous or Silurian, and were evidently leaning to the Silurian age. I told you the age was Carboniferous. This was some time in the spring of 1881, when I had received some fossils from Mr. George Daly. Later, I sent them to Dr. C. A. White, whose determination of a most exact character was published in July, 1881, in the August number of the *American Naturalist*, page 671, near bottom. Later, with better materials, after visiting the ground, I gave the first detailed geological report in the *American Naturalist*, October, 1881, page 831 (published September 23d). Still later, Mr. S. A. Miller, in the Journal of the Cincinnati Society of Natural History, December, 1881, gives a full description of the fossils and exact locations in the divisions of the Carboniferous period.

Will you kindly inform me how the determination can be ascribed to Mr. Hague, who, though an excellent geologist, is not known as a paleontologist? And how my own determination is looked on as subsequent when I certainly was the first to give you the correct one?

If you find the claims above mentioned to be just, it might be well to publish this letter, exclusive of page 1, if you like, so as to get the record straight. Very truly yours, E. D. COPE.

2100 PINE ST., PHILADELPHIA, Oct. 14, 1882.

THE FUTURE OF MEXICAN RAILROAD AND MINING ENTERPRISES.

Written for the Engineering and Mining Journal by W. B. Devereux, E.M.

Since I sent you some notes from the City of Mexico, I have made extensive journeys through the belt of country between the City of Mexico and the Pacific coast. Although the primary object of my trip was the examination of mines, and the investigation of the conditions governing their development, I was much interested in studying the general resources of the country. After having traveled fifteen hundred miles in the saddle and on stage-coaches, and having visited places remote and unknown to the ordinary traveler, I find that the railroad question is, after all, the most important one for the mining engineer. Mines there are in abundance, and such as would be readily sought after in the Western territories; but the limiting conditions are such that the providing of better means of transportation is much to be desired. The absence of wagon-roads through large districts, and the impossibility of meeting a large increase of transportation by ordinary means, without vexatious delays and expenses, at once emphasize the value which will be derived by Mexican mines from railroad transportation. The large number of animals released from through traffic will find employment at distributing points, thus providing for the increased demand consequent on new enterprises. The general advantages afforded to mines by the relative reduction of time and distance will be apparent. In certain parts of the country, wood and timber, and possibly coal, are abundant; and these necessities of mining and metallurgy can be transported to many districts now absolutely unproductive from the want of them. The railroad question in Mexico is one which gives rise to many diverse opinions and conclusions; and in view of its importance, I wish to give some results of my own observation, premising that I have no personal interest in any of the Mexican railroads, and have no wish to become their champion. Perhaps the most unfavorable conclusions, arrived at in a logical manner, are those recently enumerated by Mr. Bigelow in his paper in *Harper's Magazine*. Without discussing his views as regards the management of railroads in Mexico, and the comparative values of subsidies, to which question I paid no special attention, it seems to me that he has seriously underrated the capacity of the country to supply railroad traffic. What may be the future of the present roads, under conditions self-imposed, is one question; but whether American capital can build and operate roads in Mexico on a paying basis is another, the answer to which may or may not be identical with that of the former. The latter question I had in mind while traveling two thousand miles through the country into which the railroads are now extending. The belt of country across Mexico, from the Gulf to the Pacific, is essentially agricultural as far north as the more arid States of Zacatecas and San Luis. Traveling through this portion of Mexico, one can not but be impressed with the great variety of its productions, which range from the tropical to those common to the more temperate portions of the United States. A simple enumeration of the chief of these will emphasize the statement that not only can Mexico produce all her necessities, but her luxuries as well. As we ascend from the sea-coast, we find cotton, sugar, coffee, tobacco, corn, wheat and barley, vegetables and fruit of all kinds, both temperate and tropical; cabinet and dye-woods, pine and oak; domestic animals of all kinds; and in addition, iron, copper, and the precious metals. The elevated portion of this belt, comprising all but a strip on each coast, of perhaps less than a hundred miles in width, possesses a temperate climate. Mr. Bigelow assumes that this elevation will not permit a future advance in civilization, using the negative argument that civilization can not be found elsewhere under similar conditions of altitude. It would, perhaps, be difficult to prove that the energetic life which exists at high altitudes in our own country may continue to exist without accessions of force from outside sources; but those familiar with the far West will certainly believe in the possibility. In Mexico, my own experience, at times involving excessive exertion, and that of foreign residents whom I met in various parts of the country, convinced me that not only was the climate of this part of the great plateau more than ordinarily healthy, but that it was favorable to both mental and physical labor. Production is, of course, limited by demand and facilities of transportation; but it is surprising to see what the country can and does produce. It is hardly possible to conceive how Mr. Bigelow could have fallen into so grave an error as his statement, "that all systematic and profitable agriculture is dependent on irrigation." In that part of the country of which he speaks, corn, the food of the people, the scarcity of which almost insures a famine, is raised without receiving a drop of water, except from the rains. Without exaggeration, I may say that I rode hundreds of miles over lands cultivated for corn, where irrigation was not possible. Were the people dependent on irrigation for their food, large areas of country would contain few inhabitants. Any crop that will perfect itself in the rainy season does not need irrigation; but irrigation does increase the producing power of the land by extending it through the dry season. In many sections, where the climate is otherwise suitable, wheat can not be raised during the summer on account of the excessive rains, and in these it is raised during the dry season, and harvested a short time before corn-planting begins. I saw fields of wheat of several miles' extent, which were fine looking, and yielded a plump, clean berry. Visiting the markets in all the towns where I was able to stop, I invariably found many varieties of our ordinary vegetables in abundance. In Guadalajara, particularly, the display of fruits and vegetables was especially fine. All through the West, wheat and corn were sold at about the prices they would bring here. The abrupt variations of prices in different districts show the possibilities of traffic where the difference is greater than the cost of transportation.

Of course, the low country is unhealthy for a foreigner; but that is a condition which, though preventive of foreign labor, does not prevent foreign supervision.

Another erroneous statement in Mr. Bigelow's paper, which is emphasized as a special reason why railroads in Mexico can not pay dividends, is in regard to fuel. He says: "The wood used by the companies now extending their lines from the City of Mexico costs eighteen dollars a cord, and is only ordinary pine at that." Riding over the Mexican Central on a locomotive, I saw quantities of wood delivered which the engineer told me cost seven dollars a cord at the station. The National is even more fortunate. Going over the mountains from Mexico, its road about thirty miles out runs into good pine and spruce forests; and I may state as a fact from my own observation, that, by starting a branch from the side of the mountain toward Toluca, and skirting around the head of the Llerma Valley, they could run fifty miles, at the least, through unbroken forests, which would supply wood, ties, and the best quality of pine and spruce trees of large dimensions in any quantity. I rode on horseback nearly all day through these forests, and could seldom see cleared land. At Toluca, this timber-belt is about fifteen miles distant; and at several points as far as Morelia, good timber can be got within a short distance. Whatever sins the National people are asked to shoulder, they certainly can not be accused of building a railroad into a country where there is nothing to burn.

In a former letter, I spoke of the great promise of local traffic for both the Central and National roads, from the country tributary to their lines that I had visited. I have since followed the line of the National to Morelia, and the Central to Irapuato. A large portion of this country is exceedingly fine, especially the Llerma Valley, which is tributary to the National to Acomboro, and is then reached by the main lines of both roads. Around Morelia, the country is not so well adapted for agriculture; mining is stagnant; and Morelia, in consequence, although a large and beautifully located city, is very quiet and dull, and awaits the railroad with much impatience.

Coal of good quality is brought into Morelia in small samples; but, as elsewhere, no systematic exploitation has been carried on. Beyond Morelia, I did not see the country, and do not know what its capacities are. At Irapuato, where I left the Central, I was still in a farmer's country, and was told that it was the same until the road divided into the northern and western branches. Farther west, both routes go down into Terra Caliente, with the corresponding change of climate and vegetation. The Sierra Cocomas, or coast range, lying between these two lines in Jalisco, is even better timbered than the range I have referred to. While there are immense pitch-pine forests, the mountains are more remarkable for their forests of oak. These surpass any thing that I have ever seen for size and beauty. The white-oak forests of West Virginia somewhat resemble them, but the trees are inferior in size. I saw many trees with fine large trunks which did not bear a limb for sixty feet from the ground. There are two varieties of oak prominent, which are named by the natives the *encino* and *roboso*. The encino yields the best charcoal for cupola furnaces, and the roboso makes the best timber. In many places, the open character of these forests and the high spreading oaks gave them the appearance of immense parks. Whether the railroad routes cross the range through similar timber, I do not know; but from this region they could supply the barren mining districts with an incalcu-

lable amount of mining timber and fuel. Timber is carried by rail from Truckee, Nevada, into Central Arizona, a distance greater than any that would be necessary in Mexico.

The above statements of fact are not made with the idea that they will disprove the conclusions that Mr. Bigelow has enunciated, since he also uses other very convincing arguments based upon facts, the presentation of which my own experience does not enable me to criticise, and in any case, the problem is one that does not admit of any but an experimental solution. It will readily be believed that, were this country a part of the United States, the railroad question would be a simple and satisfactory one. Such enterprise and eagerness as have been exhibited in opening up our own country far in advance of traffic, combined with consequent rapid development, would find in Mexico a no less promising country. But at the outset, we are met with the fact that this country is not, and never will be, a part of the United States; and that while large enterprises will probably receive energetic supervision from foreigners trained to improved methods, the smaller and local developments must be left to the natives of the country. The ability of the latter to accomplish results can not be disputed, and their skill in using crude appliances is marvelous. They will obtain the best possible result in a given process; but when they have reached the limits of adaptation for that process, they stop. In other words, they seem almost entirely destitute of mechanical talent. Retarding their progress is the great and universal apathy, which is exemplified by the constantly repeated *manaña* (to-morrow). That this character is, to a certain extent, artificial, and due to a long civil and religious servitude, coupled with enforced ignorance, seems to be an undisputed historical fact. Although these conditions are largely inoperative at the present time, yet a rapid change for the better can not be expected. It must be gradual, and the artificial elements in the character of the people will struggle against their own elevation.

THE ANNUAL REPORT OF THE DIRECTOR OF THE MINT.

We are indebted to the Acting Director of the Mint, Mr. R. E. Preston, for the following synopsis of the Report of the Director of the Mint, which has been transmitted to the Secretary of the Treasury. It presents in detail the operations of the mints and assay-offices during the fiscal year ended June 30th, 1882.

The imports of foreign gold coin and bullion were in the first half of the year $30,100,230 greater, but during the last half $28,311,047 less than the exports, the net gain for the year being only $1,789,183. The total amount of gold deposited was $66,756,653, which was $74,000,000 less than the preceding year, while the silver purchased for coinage and deposited for bars was about $3,000,000 greater, and amounted to $33,720,491. Notwithstanding the decrease in deposits of gold, the coinage was greater than that of any previous year in the history of the mint. At the commencement of the year, there were on hand $86,548,697 of uncoined gold bullion, $32,848,471 of which, in addition to the deposits of the year, were consumed in coinage. The total coinage was 11,266,033 pieces, of the value of $89,413,447.50, being nearly $11,000,000 more than in any previous year. About one half of the coinage was in eagles; one third in half-eagles; and the remainder in double-eagles. The silver coinage consisted of $27,772,075 in silver dollars, and $11,313.75 in fractional coin, a total of $27,783,388.75. Of the minor or base metal coins, 46,865,725 pieces, of a value of $644,757.75, were struck. The demand for five-cent nickel pieces was quite large, and the stock of that coin in the Treasury became depleted; the Secretary of the Treasury therefore directed that the coinage be resumed, and 4,400,775 pieces, of a value of $220,038.75, were struck during the year. The remainder of the minor coinage consisted principally of one-cent pieces. Gold bars of the value of $37,505,-120.04 were manufactured, $12,147,674.90 of which were of fine gold for depositors at the New York Assay-Office. Fine silver bars of the value of $7,769,898.15 were also made, chiefly at the same institution.

Under the act of May 26th last, $6,588,000.06 in full gold bars, suitable for export, were exchanged up to October 1st at the New York Assay-Office for gold coin, thus saving to the government the expense of its coinage, as well as transportation to and from Philadelphia for coinage.

The deposits of bullion requiring parting and refining were about 1,000,000 gross ounces more than in the previous year. The extraordinary coinage necessitated the use of a large number of dies, 1267 of which were made at the mint at Philadelphia. In addition to these, twenty-eight medal dies were cut, and medals to the number of 6201 were struck, of which 876 were gold, 4522 silver, and 803 bronze.

The purchases of silver for coinage during the year amounted to 23,627,229·37 ounces of standard silver, at a cost of $24,136,942.19, an average of $1·0215 per ounce. The average London price of silver was 51 13-16 pence per ounce of British standard fineness, equivalent to $1·0226 per ounce United States standard, and the average New York price was $1·02419 per ounce standard.

During the year, about $24,000 of punched and mutilated silver coins were purchased and melted for recoinage.

The profits on the silver coinage amounted to $3,440,887.15, of which $3,438,829.41 were from the coinage of the dollar and $2057.74 from the fractional coin. Of the total profits, $64,026.11 were paid for transportation, and $15,055.99 for wastage and loss on sale of sweeps. The balance of the profits has been deposited in the Treasury.

Of the coinage of the silver dollars during the year, the mints distributed $15,747,463, leaving in the mints $35,365,672, the balance of this and previous years' coinage.

The total appropriations for the support of the mints and assay-offices was $1,209,000, of which $1,176,265.21 were expended. In addition to this, there was a further expenditure of $139,732.98 from the appropriation contained in the act authorizing the coinage of the standard silver dollar.

The total wastage or loss of metal in working was $36,658.93, while the surplus of metal returned by the melters and refiners of the several mints amounted to $38,414.43, making a net gain of $1755.50. The charges made to depositors for parting and refining their bullion amounted to $278,882. of which $264,609.56 were paid out for the expenses of these operations. A review of the operations of each mint and assay-office is also presented, giving in detail its operations and the result of the annual settlements and examinations, from which it appears that the whole service has been conducted with satisfaction to the government and to the public.

Statistics and information relative to the production, import, export, and consumption of the precious metals, and to their circulation as money, have been obtained and summarized. The production of gold for the fiscal year is estimated at $31,500,000, and of silver $44,700,000—a decline of $5,000,000 in gold, and an increase of $2,600,000 in silver upon the estimated production for the previous fiscal year. The falling off from the gold production was occasioned by the diminished yield of the gold-fields on the Pacific slope, as indicated by the diminished deposits at the San Francisco and Carson mints.

The consumption of the precious metals in the United States for use in the arts during the year is estimated at $12,000,000 of gold and $7,000,000 silver, of which $7,000,000 of gold and $6,000,000 of silver were of domestic production. There were issued from the New York Assay-Office, for the use of manufacturers, $1,500,000 more of gold and $800,000 more of silver bars than in the preceding year.

Interesting tables are given of the amount and condition of the coin and circulation at the beginning and close of the year. By adding the net gains in United States coin from coinage and from imports, less exports and the amount used in the arts since 1873, the estimated circulation at that time being $135,000,000 United States gold coin and $500,-000 United States silver coin, the total coin of the country is estimated to have been at the beginning of the year $439,776,753 gold and $171,459,-766 silver, a total of $611,236,519; and at the close of the year, $500,776,-753 gold and $199,459,766 silver; total, $700,236,519—a gain of $61,000,000 in gold coin and $28,000,000 in silver. The gains from coinage, less recoinage, were $88,814,091 in gold and $27,651,816 in silver, and by the imports of United States silver coin $517,778; but the export of United States gold coin was $25,008,659 greater than its imports, and, excluding $2,700,000 used in the arts, reduced the gain in gold coinage to about $61,000,000.

An examination of the published statement of the Treasurer and Comptroller of the Currency as to the amounts of coin in the Treasury and national banks, and of the gold and silver certificates outstanding and held by the banks, shows that of the gold coin about $87,000,000 belonged to the Treasury, $104,000,000 te the national banks, and $310,000,000 to the general public, including other banks. Of the standard dollars, $33,000,-000 belonged to the Treasury and $86,000,000 to the banks and general public. Of the total metallic circulation, $148,000,000 belonged to the Treasury, $112,000,000 to the national banks, and $441,000,000 was in general circulation.

Up to October 1st, there had been a further net gain of the coinage of $11,308,851 of gold and $7,036,000 of silver, making the circulation of the United States coin $512,191,036 of gold and $206,609,770 of silver—a total of $718,300,806.

Beside this gain, there was also in the Treasury gold bullion of the value of $51,440,420, and silver bullion costing $3,343,365, making a total of United States coin and of bullion awaiting coinage, of gold $563,631,456; and of silver, $209,953,335. The amount of gold coin and bullion in the country was about the same as on the first of November, 1881, while the gain in silver was $29,000,000. Tables are given showing the total amount of circulation of the United States at the beginning and close of the fiscal year, the amounts held by the Treasury, banks, and general public, and the gain or loss by each respectively.

On July 1st, 1881, the total paper and specie of the country amounted to $1,469,342,603; and on July 1st, 1882, to $1.543,710,432, a gain of about seventy-four and a half millions, of which twenty-eight and a half millions were gold coin and bullion. At the close of the fiscal year, the Treasury held $319,504,055 in paper and specie, the banks $203,833,800; and the remainder, $1,020,372,577, was in active circulation. Of the total increase of seventy-four and a half millions, the Treasury received fifteen and a half millions, the people gained seventy-one millions, and the banks lost eleven and a half millions.

As in previous reports, the director presents interesting and instructive tables, showing the course of prices in the United States, obtained from quotations semi-weekly in the New York market, and comparing them with similar average prices for a term of fifty-six years, and also with the previous year. From this comparison, it is shown that there was an advance in prices, principally in breadstuffs and provisions, of 10·6 per cent over 1881, and 2·7 per cent over the average of the fifty-six preceding years. The tables heretofore published by the director, showing the production, coinage, and circulation of the principal countries of the world, have been revised to the latest dates for which data could be procured.

In twenty of the chief mining countries, the production was, of gold, $107,773,157, and of silver, $97,659,460, which was an increase of one and a half millions of gold and three millions of silver over the production of 1880.

The coinage executed at the mints of the fifteen principal countries of the world during the year 1881, was of gold, $136,387,383; and of silver, $100,705,824; a total of $237,093,207, an increase of about five millions over the coinage of 1880.

The circulation of thirty-four countries, embracing nearly all of the civilized portion of the earth, is given as, paper, $3,825,220,078; gold, $3,353,673,748; and silver, $2,620,769,835—a total specie circulation of $5,974,443,583, and of paper and specie, $9,799,663,661. Of the latter, $1,698,986,763 were held by banks and national treasuries, leaving in circulation outside of banks and treasuries an active circulating medium of paper and specie amounting to $8,100,676,898.

WE have had occasion to pay a visit to the works of Messrs. Ledoux & Ricketts, of this city, which are fast approaching completion, and in which exceptional facilities have been provided for analytical work of a general character and for testing ores and minerals on a scale approximating that of regular working. They occupy the entire building, No. 10 Cedar street. On the first floor, they have a Dodge rock-breaker, a "Champion" Blake crusher, a Foster crusher, and a small Humboldt crusher, a set of Cornish rolls, Wendt's patent, built by Copeland & Bacon, and one of Ribon & March's prospectors' five-stamp mills, from which a series of copper plates leads to a set of settlers. There are also two amalgamating pans. In the basement, Messrs. Ledoux & Ricketts

have a Frue vanner and an Imlay concentrator, and a small jig designed by Mr. Wendt. We understand that they propose also to put up a small six-foot water-jacket smelter on the plan of those built by Messrs. Rankin, Brayton & Co. Power is furnished by a Westinghouse engine, which it seems is doing excellent work. In the basement is also the assay laboratory. The second floor is occupied by the general and private offices, and the third as the general chemical laboratory for the analytic work connected with the examination of phosphates, soils, marls, water, etc. The fourth floor is now fitting up for the reception of a number of centrifugals for sugar tests and for a mineral laboratory. On the fifth floor, we understand, a dynamo-electric machine is to be put up for carrying out examinations in that special field. Altogether, as our brief sketch will suffice to show, the establishment of Messrs. Ledoux & Ricketts is admirably arranged for the work to be carried out, and the systematic manner in which all the details have been elaborated gives evidence of the care which guides them in their work.

GENERAL MINING NEWS.

ARIZONA.

CENTRAL ARIZONA.—Statement showing the gross product and total expenditure for September, 1882:

TOTAL EXPENDITURES.

General expenses	$395.68
Exchange	75.66
Water service	1,691.89
Mine labor-and supplies	6,361.51
Mill labor and supplies	6,534.84
Dead-work	1,000.00
Insurance	300.00
Total	$16,359.58

PRODUCT.

913¾ ounces bullion	$14,621 69
Deficit	$1,737.89

Running time for month, 28 days, 4½ hours; ore quartz crushed, 5100 tons; average product per ton milled, $2.88; expenditure, $3.20¾. The assay of tailings for the month shows an average loss of $1.24 per ton.

PIMA COUNTY.

COLUMBIA COPPER COMPANY.—The first shipment of copper, consisting of 28,000 pounds ninety-six fine, was recently made. The smelter is now turning out over four tons of bullion per day. The company has purchased a large number of adjacent properties that are developing handsomely. It has organized two other companies, the Columbia No. 2 and No. 3. The ores of these different mines make the whole a fine smelting proposition without the addition of any barren flux.

PIMA COPPER MINING AND SMELTING COMPANY.—The official report, dated October 9th, says that the Blue Coal mine at the 130 level is looking fine. It has a solid vein of metal ten feet wide, which works twenty-two per cent and requires no sorting. The Scout mine, adjoining the Blue Coat, shows a fine body of ore at a depth of sixty-five feet.

TOMBSTONE DISTRICT.

Recent dispatches state that more miners are working in this district at present than ever before. About fifty mines and prospects are worked in the district. Fair Villa has 200 tons of ore on the dump. Luck-Sure has shipped 100 tons of ore to the Boston mill. The Eagle has just completed a whim on the shaft, and will sink to the depth of 200 feet before drifting farther. Ore from the Silver Bar copper mine at Bisbee is shipped here for reduction. The ore in the West Side mine is improving. A new furnace has been built at the Randolph mine. Five bars of bullion were shipped a few days ago. A whim has just been completed on the Blue Jacket, which has 150 tons of ore on the dump. Work has been resumed on the Contact mine. Vizina is shipping the usual quantity of ore to the mill.

YAVAPAI COUNTY.

GOWAN.—This mine, the owners of which have recently organized it under the laws of New York, is situated on the East Fork of the Verde River, 100 miles from Phœnix. From a report of Mr. G. A. Treadwell, Superintendent of the Central Arizona Company, and from the letters of the superintendent, Dr. Wilson W. Jones, we take the following data: The Gowan vein has a course north fifty degrees west, and an easterly dip of thirty-six degrees. It has an average width of four feet, and carries in a gangue of quartz and porphyry free gold quite evenly distributed. Developments consist of an incline run on the vein for 112 feet, a drift having been started from the bottom and driven in sixty feet. The shaft and the first thirty feet of the vein are in ore, which Mr. Treadwell estimates will average $20 in gold. The last thirty feet of the drift show the vein broken up and disturbed, with low-grade ore. At a distance of 170 feet farther up the hill, a new shaft was started recently. Mr. Treadwell, under date of May 18th, says that there were 300 tons of ore on the dump, showing by horn-spooning an average of $20. He states that the ore is free milling, and that, according to present developments, the mine could support a ten-stamp mill. The company has since purchased a ten-stamp mill, and has nearly all the machinery on the ground. It is expected that it will be ready to run by about the middle of next month. Being located in close proximity to the Verde River, with ample water-power and a good supply of wood, this prospecting-mill will enable the owners to test the value of their property thoroughly. The same parties are also owners of the Excursion mine, near the Gowan, and the two companies will co-operate, and, possibly, may be consolidated.

CALIFORNIA.

THE BODIE DISTRICT.

ORO.—At the annual meeting, held at San Francisco, October 5th, the following directors were elected: J. R. McKenzie, President; C. W. Banks, Vice-President; J. H. Dane, Charles G. Ewing, and G. W. Cope. Mr. Stuart was elected Secretary, and Thomas Steel Superintendent. On October 1st, the liabilities were $18,918.49, and the assets $10,110.52.

STANDARD.—The official report of October 7th says: East cross-cut, 1000 level, is in 998 feet; the face is in very hard rock, showing seams of quartz. Since last report, an east cross-cut was started from south drift, 1000 level; this cross-cut is now in fifteen feet. The heavy flow of water from this cross-cut has not decreased during the week. The total length of east cross-cut, 700 level, is 884 feet. South drift from this cross-cut is 217 feet long, and shows two feet of vein. South drift No. 1, 500 level, is ninety-one feet long, and is in broken vein-matter. Uprise No. 1 has reached a bight of 209 feet. Uprise from north drift is up ninety-five feet, showing the vein fifteen feet wide. South drift No. 4, 385 level, is in 215 feet, and shows the vein six feet wide.

GREENVILLE DISTRICT.

CHEROKEE.—The superintendent writes, October 7th: Shipped yesterday 106 ounces retort gold. Our expenses will be less than the amount of product, notwithstanding that we were doing expensive dead-work on the shaft throughout the month. The mine above the 200-foot level is good, with ore in sight for an indefinite period that promises to yield a profit.

GOLD STRIPE.—The superintendent writes: We have in sight better ore than has been put in the mill any time during the summer, and we have every reason to hope that we shall have enough to run till late in the fall, if not all winter. As we are doing no dead-work, I hope to be able to wipe out a large portion of the deficit that has arisen dnring the summer.

INYO COUNTY.

INYO CONSOLIDATED.—This company, of which H. A. Gildersleeve is President; N. G. Fairman, Secretary; M. T. Brown, Treasurer; and G. M. Pinney, General Manager, has recently increased its capital from 100,000 to 200,000 shares, par value $5. A prospectus has been issued recently, which gives some details concerning the prosperity of the company. Abstracts are given of what appear to be earlier reports by Mr. C. A. Stetefeldt, and a later report by Mr. H. S. Craven. The mine is situated in Surprise Cañon, Inyo County. The mill has twenty stamps and a Stetefeldt furnace, a rope tramway a mile long, etc., and is estimated to have cost originally $350,000. The only new statement which the prospectus contains, so far as we can see, is that of Mr. T. B. Pheby, M.E., superintendent, who writes, under date of September 10th, that he has extracted, and has now on hand, 500 tons of ore of an average value of over $100 per ton; that he has exposed large bodies of ore in the Ida and Wall Street; and that the repairs of the mill are completed, and that further expenditures on it will not be necessary for a long time. The mine shipped $12,000 in September and $46,421 since the 1st of January, 1882.

CANADA.

NEWFOUNDLAND.

Very favorable accounts continue to be received from the copper mine in Little Bay. The shipments of ore this year are most satisfactory, and as much care is taken in dressing the ore, the season's shipments average twelve per cent copper.

NOVA SCOTIA.

A valuable discovery of gold has been made about three miles from Salmon River mines, on the property of James H. Whitman, A. K. Archibald, and George W. Stuart. Some fine specimens of quartz have been found in surface boulders.

CHEGOGGIN POINT MINING COMPANY.—We have before us a report on this property by Mr. Theodore A. Hale, who describes himself as late superintendent of the Alps Consolidated mines and mills, Pioche, Nevada. The territory of the company is in a district comparatively unknown and little prospected, and Mr. Hale naturally present little but general facts, without attempting to arrive at any valuation. The property is situated at Chegoggin Point, on the Bay of Fundy, five miles from Yarmouth, and is a consolidation of a number of interests, embracing in the aggregate 2250 feet across the strata, and 9300 feet along the same. Mr. Hale has examined the following mines: The South Mundic; the Copper and Galena lead; the South Gold lead; the North Mundic; the Pudding lode; the White Slate lode; and the Free Gold lead. The South Mundic carries iron and arsenical pyrites, and has yielded $21 per ton in gold as the highest assay. The next two leads seem unimportant. The North Mundic is looked upon by Mr. Hale as the most valuable vein, being thirty-four feet wide in solid ore at two distant points, and traceable for over a mile. The ore carries iron, zinc, copper, arsenic, and sulphur, and, according to Mr. Hale's assays of five samples, $18.45 per ton in gold. Mr. Hale seems to be of the opinion that the base metals may be made available, as they have a recognized commercial value. He seems to forget, however, that in the case of sulphur, iron, and zinc, no returns can be expected by any present known methods, and that the value of the copper depends on the quantity, which is not given. As for the arsenic, it is the only substance in the ore likely to yield profits. The ore is refractory, and the cost of extraction will probably be high. Mr. Hale does not give any estimate of cost of treatment; but if the grade will average as high as he makes it, working it may be made profitable by a judicious outlay of capital in well-planned works. The Pudding lode is described as an aggregation of slate and clays, quartz alternating and running together to a width of 140 feet. Assays range between $2.60 @$27.54 in gold, and palladium is reported. The White Slate lead is fifty feet wide, and carries gold as high as $32. The Free Gold lead is a system of twenty quartz veins, ranging in width from four to thirty inches, and aggregating ten feet of quartz. The ore carries galena and copper pyrites and free gold to the extent of from $1.10 to $50.66 per ton. We understand that this lode has been showing up finely of late. Mr. Hale speaks of the advantages which this property possesses in common with all those of Nova Scotia, cheap fuel, supplies, and labor, and accessibility. Mr. David Cowan is president, and I. K. Kinney, M.P., secretary and treasurer. The parties interested are residents of Yarmouth. We are indebted to Mr. S. C. Northrup, of that town, for some recent details.

ONTARIO.

The shipment of iron ore from Belleville has ceased for the season.

COLORADO.

BOULDER COUNTY.

PRUSSIAN MINING AND SMELTING COMPANY.—The output for September was a little over $17,000, of which more than $14,000 was net profit. A force of twenty men is worked on the mines, and is pushing development in levels four, five, and six.

CHAFFEE COUNTY.

ELKINGTON.—A rich strike is said to have been made in this claim, east of the Great Monarch mine, and a number of tons of fair-grade ore have already been sacked.

MADONNA.—Smelter, under General Tuttle, running full capacity and shipping a car-load of bullion every other day.

CLEAR CREEK COUNTY.

GUM TREE.—About ninety-five tons of ore, extracted from different points in the mine, were recently treated at the Idaho Reduction-Works, and gave very satisfactory results.

KOHINOOR.—A strike was recently made on this lode—owned by the Kohinoor Mining Company, of London, England—between the 110 and 160-foot levels. The two levels are connected by a winze, from which the lessees have been drifting about midway between them, and opening a vein of galena and decomposed ore from six inches to a foot in thickness, that carries silver at the rate of from 300 to 350 ounces to the ton.

OSBISTON CONCENTRATING-WORKS.—It is now reported that the negotiations between the English company and Colonel Osbiston for the purchase of the Osbiston Concentrating-Works, which were on the verge of successful completion, have fallen through, and that the company is now laying plans for the erection of entirely new works near the mouth of Trail Run.

GUNNISON COUNTY.

CELESTIAL.—This iron mine, it is stated, produces the finest fluxing ore to be found. Shipments are made daily of the ore to the St. Elmo smelter, and at a good profit.

SILENT FRIEND.—A correspondent of the Leadville *Herald* says that this property was recently sold for $150,000. This mine shows a cropping of over six feet of solid galena. A shaft of seventy feet was started on the vein, and has been in solid mineral. The vein is four feet wide at the bottom of the shaft. About six thousand dollars' worth of ore has been shipped so far, and about the same amount is on the dump.

LAKE COUNTY.

AMIE.—The lessees who are working from the Amie No. 3 shaft have struck a

body of galena ore that already shows six feet in thickness, with the extent not yet defined. The ore runs from 200 to 500 ounces in silver and sixty per cent in lead.

HENRIETT.—It is understood that O. H. Harker will retain the management.

LITTLE PITTSBURG.—But little work is doing at present, pending the arrival of instructions from the New York office in regard to further development-work. Manager Gilman has closed down the No. 10 north shaft and the New Discovery shaft.

MINNIE.—Ore has again been caught in a new shaft, about forty-five feet distant from the Rebel shaft, which is in conflict between the Rebel and the Minnie. The new strike was made at a depth of about 112 feet, at which point a drift had just been started, and is important as showing the ore-body encountered in the disputed shaft to be continuous, and demonstrating the correctness of the calculations on the basis that led to the new discovery. It is hoped that the litigation between the Rebel and the Minnie will soon be settled.

SHIELDS.—Mr. Neils Larson, the present receiver, is pushing work on this property. The amount of money first provided—$5000—has all been expended, and another installment called for and advanced by Mrs. Fisher, at whose instance also the receiver was appointed.

SMUGGLER.—The lessees have opened up a new ore-body in the north shaft, and the production of the mine will be materially increased.

PITKIN COUNTY.

A mill for the treatment of low-grade refractory silver ores is about completed at Pitkin by the Michigan & Colorado Mining Company, of that place, and will be ready to start shortly.

BRITTLE SILVER.—Active work has again begun at the mine.

STREB CONSOLIDATED.—The Carbonate *Chronicle* says that this company has completed the assessment-work on all its properties on French Mountain, and developed some of the claims quite extensively. The J. J. Streb, Colorow, and Silver Spur are all said to show strong ore-bodies ranging in value from forty-four to 432 ounces silver per ton. The vein was struck near the surface, and in doing assessment-work widened from one inch to a foot. Parties are figuring for a lease of some of this company's mines, and propose to work them with a large force through the winter.

SAN JUAN COUNTY.

The Comstock Sampling-Works have been crowded ever since they began running, and we learn enough ore has been contracted for to keep them—in connection with the North Star ore—busy running pretty nearly all winter. A building for a concentrator which will be in running order early next spring is now going up.

RED MOUNTAIN.—The excitement over the discoveries of rich mineral on Red Mountain, says the San Juan *Herald*, increases. Notwithstanding the recent unusually inclement weather, the country in that vicinity is literally covered with prospectors.

SUMMIT COUNTY.

GRAPHIC MINING COMPANY.—This company owns eight locations on Sheep Mountain, near the Robinson mine. The Crown Point, which is well known as having produced some of the richest silver ore ever mined in the State, is among the claims of the Graphic Company. Arrangements are now making to start up work and vigorously push it. New machinery has been ordered, as has also the lumber for new buildings. All is expected to be completed on the surface by the middle of November, and ore-hoisting will be begun by the first of December.

DAKOTA.

CALEDONIA.—The superintendent reports for the week ended October 8th: Ore produced, 474 tons. South drift, discovery ledge, advanced 10½ feet; total, 49½ feet. The face is in low-grade ore. Stopes are looking fine, and the mine will be in shape in a few days to supply the whole mill with ore.

MEXICO.

The latest telegraph dispatches state the following: A valuable discovery of cinnabar is reported to have been made in the Sierra Madre Range, about 140 miles west of Chihuahua, by an American prospector. Denouncement of the same has been made, and when the title is perfected, a large force is to be put to work.

The following are the results of analyses of iron ores made for the Sinaloa & Durango Railroad Company, Limited, by Mr. J. Blodget Britton, of Philadelphia:

	Tepuche.	Cosala.	Bescaino.
Pure metallic iron	65·080	67·250	66·750
Oxygen with the iron	26·980	28·010	27·850
Water	1·260	1·060	1·870
Silica	5·080	2·460	2·680
Phosphoric acid	0·146	0·225	0·575
Phosphorus	0·064	0·083	0·033
Sulphur	None	None	None
Titanic acid	None	None	None
Oxide of Manganese	0·057	Traces	Traces
Ferric oxide	65·880	71·820	72·820
Magnetic oxide	26·180	23·440	21·680
Phosphorus with 100 of metallic iron	0·099	0·123	0·047

MICHIGAN.

The products of the reporting copper mines for the month of September are as follows: Calumet & Hecla, 1693 tons 1380 pounds; Quincy, 325 tons 250 pounds; Franklin, 170 tons 280 pounds; Atlantic, 158 tons 1425 pounds; Allouez, 100 tons 385 pounds; Pewabic, 74 tons 667 pounds.

MONTANA.

LEWIS & CLARKE COUNTY.

BELMONT.—It is rumored that this mine will be worked again.

GLOSTER.—The vein is nearly 20 feet in width at the point where they are now sinking near the 300-foot level, and is still widening. At the point where the shaft started, the walls were 4½ feet apart, about the narrowest place found in the lode.

GRUBSTAKE.—One hundred tons of ore, crushed in the Stemple mill, produced over $6000 gold.

ORO CACHE.—A large body of ore is exposed by tunnels, shafts, and levels, and there are something over 300 tons of ore already on the dump. This ore averages in value about $165 to the ton. Work at the new mill is pushed vigorously, and it is expected that it will be in operation in about two months.

SILVER BOW COUNTY.

MOULTON.—At the annual meeting, held at Salt Lake City, October 9th, the superintendent submitted his report for the year ended September 30th, which shows the company to be in a prosperous condition. During the nine months in which the company has been operating, nearly $300,000 worth of bullion has been produced. The company has nearly 10,000 cords of wood on hand, together with a good supply of powder, salt, and supplies generally. The following directors were elected for the ensuing year: William A. Clark, John M. Conyer, James R. Clark, Alexander J. Johnson, Harry A. D'Acheul, Eli H. Murray, George F. Prescott, John M. Moore, and Joseph K. Clark. At a meeting of the directors, held after the adjournment of the stockholders' meeting, the following officers were elected: President, W. A. Clark, Butte; Vice-President, E. H. Murray, Salt Lake; Secretary, G. F. Prescott, Salt Lake; Assistant-Secretary, J. M. Moore, No. 78 Broadway, New York; Treasurer, J. R. Clark, Butte.

TEN MILE DISTRICT.

LEE MOUNTAIN MINING COMPANY.—Mr. J. G. Murphey, E.M., secretary of this company, of No. 78 Broadway, has made a report on this mine under date of September 28th, from which we gather the following details on this property The claims, eleven, and all patented but one, are situate in the Ten Mile District, Lewis & Clark County, sixteen miles from Helena and ten miles from the nearest point on the Northern Pacific Railroad, being connected with both by wagon-road. The veins are fissures in granite with clay selvages, striking nearly east and west, and dipping nearly perpendicularly. The Lee Mountain is on a vein about fourteen feet wide from wall to wall. The Lee Mountain carries galena, zinc-blende, copper and iron pyrites in a quartz gangue, the average of the vein being about twelve per cent of galena. It has a tunnel 400 feet in, the last forty feet on the vein. A higher tunnel was driven 130 feet before striking the vein, on which it has been driven fifty feet, in ore. The North and South Pacific have a shaft 122 feet deep, and connected with a tunnel 285 feet long. Some stoping has been done on this vein. The ore consists of gray copper with a small quantity of galena in a quartz gangue. First-class ore shipped at various times ranged from ninety-five ounces of silver and forty-three per cent of lead to 154·58 ounces of silver and forty per cent of lead for galena ores, and 258·8 ounces of silver for gray copper ore. A sample of the second-class dump yielded sixty-two ounces. On the Lee Mountain, which carries essentially second-class ore, Mr. Murphey estimates the concentrates from three tons. Taking the four claims, consisting of the North and South Pacific, the American Flag, and the O. H. Bassett, Mr. Murphey, with an average pay-streak of 3½ feet, estimates them capable of furnishing fifty tons per day to a forty-stamp dry crushing mill. He makes the somewhat high estimate of extracting ninety per cent of the sixty-two-ounce ore, and places the expense of mining, milling, and transportation at $23, which appears to be low. Taking silver at $1 per ounce at the mines, he figures out a profit of $46,000 per month. In addition to this, he holds the Lee Mountain capable of supplying a thirty-ton smelter with concentrates, and estimates the cost of mining, concentrating, and smelting at $25.50, with a loss of ten per cent on the silver. The lead he neglects entirely. With an average of the ore of fifty-six ounces, he reaches a monthly net profit of $20,932, or a total monthly profit of $66,932. Mr. Murphey estimates the reserves at 13,653 tons on the North and South Pacific and the American Flag, averaging seventy-five ounces, and yielding a net profit of $50; and thus reaches a valuation of $682,650, which does not include the reserves of the Bassett or the Lee Mountain. Mr. Murphey has been engaged in his profession four or five years, according to his own statement. The officers of the company, which has a capital stock of 250,000 shares—par value, $10—are: E. Nagle, President; T. Swan, Vice-President; A. R. Converse, Treasurer—all of Cheyenne; and J. G. Murphey, Secretary, of this city. Among the trustees are: H. N. Nichols, of North Platte, Nebraska; John Caplice, of Butte, Montana; and E. E. Sage, C.E., of this city. The latter gentleman informs us that 30,000 shares of stock have been sold, and that the present price is $3, which would be at the rate of $750,000 for the property. The treasury stock is 51,000 shares.

NEVADA.

ALBION.—According to the Eureka *Leader*, the mine never looked so well as at the present time. The new ore-bodies in the veins of the east uprise continue to improve as they are worked. Ore-body B also shows improvement. The mine has been put in thorough order for active work when the furnaces are started up. A large amount of ore has been broken down and lies in the chutes or chambers ready for hoisting as soon as the furnaces are ready.

DAY.—The company will close down the furnace at Bristol shortly, after a long and successful run of about four months. The hoisting-works of the old Hillside mine are to be taken down, removed, and erected on the Day mine.

SILVER CONNOR.—The Ruby Hill *News* states that ore has been hoisted from the 400 level every day since the 16th of August. The depth at which the ore is obtained is greater than any other point on Prospect Mountain.

NEW MEXICO.

The Torrence mine has again closed down, after running but twenty days in September.

ORGAN DISTRICT.

The gold excitement continues unabated in this district.

SAN ANDRES DISTRICT.

The Asteroid, Good Fortune, and other mines of this district, near Good Fortune camp, show large quantities of manganese carrying silver. Manganese is now utilized as a flux, while formerly it was treated as waste. The New York claim, copper and silver-bearing lode, at slight drift shows ore yielding 27½ per cent copper. It is reported that the United States and Mexican Syndicate has secured the Charlotte Mere, George Canning, Lilian Dynevor, Beatrice S., Rochester, and Hopewell locations, and is arranging to stock and develop the Lilian Dynevor, George Canning, Maine, and New Hampshire mines as a group.

VICTORIA DISTRICT.

A visit just made to this district, three miles from Gage station, Southern Pacific Railroad, shows that the camp has developed large bodies of carbonate ore, assaying from fifty to 500 ounces silver and $30 gold per ton and fifty per cent lead. The ore makes to the surface in strong veins, which have been developed in places to the depth of 170 feet. In the lower workings, have been discovered immense caves filled with hard and sand carbonate ore.

UTAH.

MILLARD COUNTY.

A correspondent of the Salt Lake *Tribune* says that the E. P. H. mine—a patented claim belonging to the Deseret Gold and Silver Mining Company, of Chicago, Ill.—at the depth of 130 feet struck a very large body of red and black oxide of copper, ranging from twenty-eight to sixty-five per cent, and carrying gold in considerable quantities. The mine has steadily improved for every foot sunk, and now shows nine feet of solid ore. The vein is perpendicular—but one wall is shown; how thick the body of copper ore is, can only be determined by a cross-cut, which will probably be done when 150 feet is reached. Another promising location is the Juno, which at about twenty-five feet in depth shows two feet solid of ore carrying thirteen per cent bismuth, eighteen per cent copper, and forty-two ounces silver per ton. The owners of this claim intend shortly to make a shipment to England as a test. The ledge is in a porphyry ledge.

MINERAL PATENTS GRANTED BY THE UNITED STATES LAND-OFFICE.

The following Mineral Patents were promulgated October 19th, 1882:

ARIZONA.

TUCSON DISTRICT.

Cyrus H. McCormick *et al.*, upon the Pocahontas lode. Charles A. Springer, Jr., upon the Dutchess lode. Lionel M. Jacobs *et al.*, upon the Plomoso lode. Pinckney R. Tully *et al.*, upon the Omega First Extension and Omega lodes.

CALIFORNIA.

THE BODIE DISTRICT.

Thomas Henning, upon the New Enterprise lode.

SHASTA DISTRICT.

Alexander M. Johns, upon the Smith and Bonner quartz mine.

COLORADO.

CENTRAL CITY DISTRICT.

La Crosse Gold Mining Company, of Colorado, upon the Monroe lode. Thomas W. Jones, upon the Muscovite lode. John Cree, upon the Pensacola lode.

Richard Veale *et al.*, upon the Monongahela lode. Decatur Silver Mining Company, upon the Decatur lode. Newport Mining, Manufacturing, and Commercial Company, upon the Snow Flake lode. Patrick Scanlan, upon the Furlong lode. Daniel W. Glaze, upon the Amboy lode. Oliver Milner, upon the Silver King lode. Nathaniel Brooks *et al.*, upon the Carpenter lode. Governor Group Gold Mining Company, upon the Fannie H. and Denver View lodes. Robert O. Old, upon the Autocrat and Vulcan lodes. Jacob J. Ellicott, upon the Elliot & Barber lode. Julius P. Chavanne *et al.*, upon the Star lode. William Moore *et al.*, upon the John D. Long lode. Leonard A. Watkins *et al.*, upon the Continental lode. Jordan E. Rockwell, upon the Swamp Angel No. 2 lode.

LAKE CITY DISTRICT.

William Thomas *et al.*, upon the Belcher lode. Hugh Ross, upon the Winchester lode. Bessie Bascom Consolidated Mining Company, upon the Bessie Bascom and Idlewild lodes. John H. Haynes *et al.*, upon the Silver Link lode and mill-site. Colorado Mining and Discovery Company, upon the Leviathan lode.

LEADVILLE DISTRICT.

Frederick E. Bruen *et al.*, upon the Chesapeake lode. John F. Handley *et al.*, upon the Campbell lode. Buda Mining Company *et al.*, upon the Stem Winder lode. Elzer La Fontaine *et al.*, upon the Willoughby lode. Henri Hall *et al.*, upon the Ophir lode. Catalpa Mining Company, upon the Catalpa lode. T. H. McMichael *et al.*, upon the Ruby lode. Patrick Murphy Mining Company, upon the Iron Chest lode. Michael Mandy, upon the Little Clara lode. William. W. Montgomery *et al.*, upon the Butcher Boy lode. Golden Comet Mining Company, upon the Buena Vista lode. Fannie C. Humphreys *et al.*, upon the Sundown lode. E. Lowe *et al.*, upon the Esperanza lode. Boston & Sheep Mountain Mining Company, upon the Snow Drift lode. O. H. Harker *et al.*, upon the George Washington lode. Wirt Dexter, trustee, upon the Little Chief lode.

DAKOTA.

DEADWOOD DISTRICT.

Samuel McMaster, upon the Amicus lode.

MONTANA.

HELENA DISTRICT.

John Noyes *et al.*, upon the Minnie Irwin lode. Ferdinand Isele, upon the Germania lode. Alice Gold and Silver Mining Company, upon the Rooney lode. Daniel C. Corbin, Coal Placer, Township 17, North Range, 4 west.

NEVADA.

CARSON CITY DISTRICT.

Bismarck Mining Company, upon the Potosi quartz lode No. 1.

UTAH.

SALT LAKE CITY DISTRICT.

M. T. Gibson *et al.*, upon the Geyser lode. John Tiernan *et al.*, upon the Putman and Fremont lodes. Gustav Billing, upon the Utah Sulphur lode. Andrew Hay, upon the Central City lode. Bullion Beck & Champion Mining Company, upon the Bullion lode. W. B. Doddridge, coal patent, in Township No. 3, North Range, 5 East. William Boyer, coal patent, Township No. 3, North Range, 6 East. Albert Dewey, coal patent, in Township No. 22, North Range, 6 East.

WASHINGTON TERRITORY.

OLYMPIA DISTRICT.

Coal patents (2) of John P. Dickinson and Philip Van Tassel, in Township 18, North Range, 6 East.

WYOMING.

CHEYENNE DISTRICT.

Talon Z. Farwell, upon the Florence lode.

NEW COMPANIES.

COLORADO.

Castle Rock Mining Company has filed amended articles of incorporation, increasing the capital stock from 100,000 shares, at a par value of $10 each, to 250,000 shares, at the some cash value, and agreeing to purchase the Beatrice Flora, Alice Success, and the Papoose mining claims with the additional capital thus raised.

Flag-Staff Consolidated Mining Co. Capital, $1,000,000. Operations, Mosquito Mining District, Park Co., Colo. Incorporators, W. L. H. Miller, Charles A. Cook, Pliny S. Rice, John Fuller, and Edward Fuller.

Pilot Temple Mining Co. Capital, $100,000; shares, $10. Operations, in Holy Cross District, Colo. Directors, Nathaniel Rollins, Henry H. Tuttle, Thomas E. Brete, Wilber F. Gleason, Benjamin Watkins, John W. Myers, and Samuel K. Hall; Judge N. Rollins, President; Samuel K. Hall, Secretary.

Victoria Silver Mining Co. Capital, $600,000. Operations, in Custer Co., Colo. Incorporators, J. H. Kerr, F. L. Martin, and John Campbell.

MICHIGAN.

Detroit Iron Mining Co. Operations, near Ishpeming, Mich. Directors, John S. Newberry, James McMillan, Peter White, D. F. Wadsworth, and A. P. Swineford.

MONTANA.

Amazon Mining and Smelting Co. Capital, $500,000. Operations, Boulder, Jefferson Co., Mont.

Butte Smelting Co. Capital, $80,000. Operations, Butte City, Mont.

Montana Improvement Co. Capital, $2,000,000. Principal place of business, Deer Lodge City, Mont.

Moreland Ditch Co. Capital, $50,000. Operations, Hamilton, Gallatin Co., Mont.

NEW YORK.

Virginia & New York Lead and Iron Ore Co. Capital, $300,000; shares, $50 each. Operations, Rockingham County, Virginia. Incorporators, Richard George, John George, E. B. Brown, John Ashcroft, and J. F. Preston. Office, New York City.

Graphite Steel and Iron Company increases capital stock from $3,000,000 to $12,000,000.

Minas Viejas Co. Capital, $2,500,000; $5 each. Operations, Nueve Leon, Mexico. Incorporators, Theodore V. Sand, Samuel W. Thompson, and John C. Cruikshank. Office, New York.

Richmond Gravel Mining Co. Capital, $100,000; shares, $1. Operations, in Town of Benson, Hamilton Co., N. Y. Incorporators, Asa Bellis, Alva J. Zimmer, W. Elliston Mills, Charles O. Mills, William P. Buckley, and Edward H. Mills. Office, Gloversville, N. Y.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

GRANTED SEPTEMBER 5TH, 1882.

263,694. Pumping-Engine. Harvey F. Gaskill, Lockport, N. Y.
263,708. Smoke-Consumer. Salmon Jones and George B. Marshall, Cincinnati, O.
263,709. Crucible-Tongs. Samuel C. Murdoch, Pittsburg, Pa.
263,808. Dry-Ore Separator. Patrick W. Reardon, San José, Cal.
263,821. Manufacture of Soda. Ernest Solvay, Brussels, Belgium.
263,859. Apparatus for Tempering and Hardening Wire. Edward Clifton, Lowell, Mass.
263,921. Apparatus for Generating Gas. Nelson M. Langdon, Chester, N. J.
263,977. Miner's Pick. Sampson Smith, New Bethlehem, Assignor of one half to John W. Smith, Alleghany, Pa.
263,984. Process of and Apparatus for the Manufacture of Gas. Theodore G. Springer, New York City.
263,985. Process of and Apparatus for the Manufacture of Gas. Theodore G. Springer, New York City.

GRANTED SEPTEMBER 12TH.

264,179 Stone and Ore-Crusher. Samuel L. Marsden, New Haven, Conn.
264,196. Slate or Earth Auger. Jeremiah N. Rainey, Ironton, O.
264,296. Annealing-Furnace. Edward James, Tipton (near Birmingham), County of Stafford, and Edwin Handley, Birmingham, County of Warwick, England.
264,305. Ore-Battery. Peter Kirkwood and Joseph Wear, Butte City, Mont., and James Murdock, Park City, Utah.
264,344. Amalgamator. Erich T. Schmidt and William H. Streernwitz, Houston, Tex.
264,368. Cross-Heads for Engines, etc. John E. Sweet, Syracuse, N. Y.
264,384. Tuyere. August Werner, Leadville, Colo.
264,413. Rope Railway. Joel B. Low and Abraham K Grim, San Francisco, Cal.
264,422. Apparatus for Amalgamating and Separating Gold, etc., from their ores. Sylvanus L. Trippe, Chicago, Ill., Assignor of one half to Abel H. Bliss, same place.

GRANTED SEPTEMBER 19TH.

264,469. Hoisting Apparatus. William B. Moore, Millsborough, Pa.
264,483. Horse-Power Machine. Hemphill Smith, Shelby County, Tenn.
264,484. Pump. William A. Spooner, Harwinton, Conn.
264,524. Clamping Mechanism for Steam Rock-Drills. Joseph C. Githens, New York City, Assignor to the Rand Drill Company, of New Jersey.
264,529. Machine for Making Wire Rope. Andrew S. Hallidie, San Francisco, Cal.
264,535. Process of and Apparatus for Coating Barbed Fence-Wire with Metal. Edwin H. Hill, Worcester, Mass., Assignor to Washburn & Moen Manufacturing Company, same place.
264,585 Ore-Screen. George W. Waitt, Camden, N. J.
264,620. Electro-Magnetic Ore-Separator. C. Gordon Buchanan, Brooklyn, N. Y.
264,636. Combined Miner's Candlestick and Loading Tool. Charles P. Des Moineaux, Leadville, Colo.
264,746. Pumping-Engine. John H. Pendleton, Brooklyn, N. Y., Assignor to himself and Alexander H. Tiers and Cornelius Tiers, Madison, N. J.
264,775. Valve for Air-Compressors. Henry C. Sergeant, New York City, Assignor to the Sergeant & Cullingworth Company, same place.
264,792. Ore-Stamp. James Symons, Newark, O., Assignor of two thirds to Daniel R. Murphy, same place, and Gurdon D. Johnson, Granville, O.
264,799. Well-Boring and Stone-Drilling Machine. John Vanderslice and Frank H. Banks, Phœnixville, Pa.
264,801. Utilization of By-Products in the Manufacture of Coal-Gas. Roger W. Wallace and Carl F. Claus, London, England, Assignors of two tenths to William Freeman Jack and Ebenezer Stewart, same place; said Wallace Assignor of his remaining right to said Claus.
264,816. Power-Hammer. Alexander Beaudry, Boston, Assignor to Augustine Beaudry, East Boston, Mass.

GRANTED SEPTEMBER 26TH.

264,847. Mold-Bottom for Casting Steel Ingots. Elmore A. Barnes, Pittsburg, Pa.
264,859. Atmospheric Hammer. John C. Butterfield, Chicago, Ill.
264,860. Pneumatic Cylinder for Machinery. John C. Butterfield, Chicago, Ill.
264,927. Apparatus for Separating Metals by Electrolysis. Henry R. Cassel, New York City, Assignor to the United States Bullion Refining Company, same place.
264,928. Process of and Apparatus for Separating Metals. Henry R. Cassel, New York City, Assignor to the United States Bullion Refining Company, same place.
264,962. Rotary Pump. Francis M. Roots, Connersville, Ind.
265,066 *to* 265,077 *inclusive*. Manufacture of Refractory Furnace Linings. James Henderson, Bellefonte, Pa., Assignor to Charles G. Francklyn, New York City.
265,128. Smelting-Furnace. Charles H. Murray, Leadville, Colo.
265,156. Tuyere. William H. H. Sheets, Pittsburg, Pa.
265,221. Process of Applying Alloys to Steel. Peter de Villiers, St. Leonard-on-Sea, England.

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Oct. 20.

Business has been more brisk at the Mining Exchanges this week than for the two previous weeks, but the dealings continue to be in such stocks as Robinson, South Pacific, Decatur, and Silver Cliff. In fact, Robinson has been the center of interest, if there be any interest outside of the brokers themselves; and it is curious to watch its manipulations. There is no news from the mine to warrant its high price one day nor its low price another; still it goes up and down to suit the manipulators. The Comstocks are quiet and weak, and so, in fact, is the whole market. The sales of mining shares at all the Exchanges this week aggregate 582,333 shares, as against 386,621 last week.

The dealings in the Comstock shares were mostly confined to two or three stocks, which were very irregular. California was active and irregular at 26@31@26c. Consolidated Virginia was also active and irregular, selling at 63@53@65c. Sierra Nevada sold at $4.75. Mexican was quiet at $3.85@$4. Ophir sold to the extent of 100 shares at $3.13. Yellow Jacket was quoted at $1.70. Best & Belcher was quiet at $5.83@$5.50. Sutro Tunnel was dealt in to the extent of 27,400 shares at 31@28c.

The Leadville stocks were quiet and somewhat weak. Amie was active and a little weak, selling at 17@14c. Chrysolite shows some weakness, selling from $1.85@$1.60, with a business of 2347 shares. Hibernia sold at 52. Iron Silver had a fair business at strong prices, selling at $2.40@$2.25@$2.30. Little Chief was quiet and a little weak, selling at 57@52@53c. Climax was weak, and sold at 11@6c., with transactions of 6800 shares. Miner Boy was active and steady at 2@4c.

The Bodie stocks were very quiet, with little change in price. Bodie Consolidated was dealt in to the extent of 400 shares at $3 25@$3.75@$3.50. Bulwer was quiet and steady, selling at $1@$1.10. Standard was almost neglected, the transactions amounting to but 380 shares at $4.25@$4.75. Noonday sold at 45c.

The Tuscarora stocks were quiet at about steady prices. Grand Prize was very irregular, selling at 55@63@50c. Tuscarora had an active business at steady prices, selling at 7@9@8c. Argent was very quiet at 65c. Independence was quiet and steady, the sales aggregating 3910 shares at $1.35@$1@$1.25. Navajo was quiet and steady, selling at $5.50@$5.13. North Belle Isle sold at 10c.

In the miscellaneous list, the Green Mountain stocks have not been as active as usual, although the weak prices still continue. Gold Stripe was quiet at 15c. Green Mountain irregular, selling at 69@70c., with transactions of 1500 shares. Rising Sun had a fair business at steady prices, selling at 6@7c. Cherokee shows some strength under a fair business, and has sold at 16@23@20c. Hall-Anderson has been quiet and steady, selling at $2.@$2.05. Horn-Silver has been quiet and very irregular, selling at $8.50@$8.38@$8.63. Robinson Consolidated has been very active, the transactions aggregating

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	SHARES. No. in 1000's	SHARES. Par Value.	ASSESSMENTS. Lev'd to date in 1000's.	ASSESSMENTS. Date and amount per share of last.	DIVIDENDS. Total paid to date in 1000's.	DIVIDENDS. Date and amount per share.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. Oct. 14. H.	Oct. 14. L.	Oct 16. H.	Oct 16. L.	Oct. 17. H.	Oct. 17. L.	Oct. 18. H.	Oct. 18. L.	Oct. 19. H.	Oct. 19. L.	Oct. 20. H.	Oct. 20. L.
Alice, Mon..	400	25	*	.....	400	De 81 10	2.10	.....	.....	.....	2.00	.....	2.10	2.00	.....	.....	2.00	.....
Amie Con., Co....	500	10	*	.....	305	My 80 10	.17	.16	.16	.....	.16	.15	.16	.....	15	.....	.16	.14
Atlantic, Mich....	40	25		.....	140	Fe 82 2 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Argenta, Ne.....	100	100	200	Se 82 25	40	Fe 80 20	.....	.....	.....	.....	.....	.....	.....	.....	.65	.....	.....	.....
Bar & Walker, Ut.	100	10	*	.....	60	No 80 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bassick, Co.....	100	100	*	.....	25	Fe 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belle Isle, Ne.....	100	100	65	My 82 10	300	De 79 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Black Bear, Ca...	90	100	15	Se 79 50	889	Se 82 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belcher, Ne.....	104	100	2562	Se 82 25	15397	Ap 76 1 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bodie Cons.,Ca...	100	100	125	De 81 50	1275	Oc 82 25	.....	.....	.....	.....	3.50	3.25	3.75	3.50	.....	.....	.....	.....
Bos'n & Mon,Mon.	200	10		.....	200	No 82 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Breece, Co.....	200	25		.....	2	Fe 80 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bulwer, Ca.....	100	100	80	De 77 50	110	Oc 82 10	.....	.....	.....	.....	.....	.....	1.00	.....	.....	.....	1.10	.....
California, Ne..	540	100	530	Se 82 20	31320	De 79 50	.27	.26	.28	.26	.26	.....	.31	.....	.29	.26	.....	.....
Cal. & Hecla,Mch.	100	25		.....	21850	Au 82 5 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Caribou Con.,Co.	100	10	*	.....	50	Mr 80 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carolina Q'n,N.C.	100	2		.....	6	Se 82 02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Castle Creek, Id..	100	1		.....	15	Oc 82 03	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Catalpa, Co.....	300	10	*	.....	180	My 81 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chrysolite, Co...	200	50	*	.....	1600	De 81 50	1.85	1.70	1.75	1.70	1.75	.....	1.70	1.65	1.55	.....	1.60	1.50
Climax, Co.....	200	10	*	.....	180	Au 80 30	.11	.10	.....	.....	.11	.10	.11	.09	.09	.....	.07	.06
Cons. G. Mg., Ga.	100	5	*	.....	64	Au 82 04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cons. Va., Ne....	540	100	897	Au 82 30	42930	Au 80 50	.69	.63	.55	.53	.58	.56	.68	.67	.70	.....	.66	.64
Copper Queen,Ar.	250	10	*	.....	500	Se 82 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crown Point, Ne.	100	100	2673	Fe 82 25	11588	Ja 78 2 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
D'dw'd-Terra, Dk	200	25	*	.....	886	Oc 82 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dunkin, Co.....	200	25	*	.....	200	Ju 81 7½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eureka Cons.,Ne.	50	100	100	My 76 1 00	‡	Jy 82 25	.....	.....	.....	.....	12.00	.....	.....	.....	.....	.....	.....	.....
Evening Star, Co.	50	10	*	.....	1225	Oc 82 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Excelsior, Ca.....	100	100	300	Ja 82 1 00	875	Oc 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fa. de Smet, Dk..	100	100		.....	510	No 82 20	.....	.....	.....	.....	.....	.....	.....	.....	5 00	.....	.....	.....
Findley, Ga.....	200	1	*	.....	8	My 79 1c	.10	.....	.....	.....	.10	.....	.....	.....	.....	.....	.10	.....
Freeland, Co.....	200	25	*	.....	50	My 80 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Glass-Pend., Co..	250	20	*	.....	25	My 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gold Stripe, Ca..	150	10	*	.....	76	Jy 81 15	.....	.....	.....	.....	.15	.....	.15	.....	.....	.....	.15	.....
G'ld & Curry, Ne..	108	100	3476	Se 82 50	3826	Oc 70 $10	.....	.....	.....	.....	.....	.....	3.30	.....	.....	.....	.....	.....
Grand Prize, Ne..	100	100	395	Se 82 25	450	Se 80 25	.....	.....	.....	.....	.....	.....	.55	.....	.63	.....	.50	.....
Great Eastern, Dk	300	1	*	.....	16	Jy 80 01	.....	.....	.03	.....	.03	.....	.03	.....	.....	.....	.03	.....
Gr. Mountain, Ca.	125	10	*	.....	212	Nov 81 7½	.69	.67	.70	.68	.70	.....	.70	.....	.70	.67	.....	.....
Hale & Nor., Ne..	112	100	4008	Se 82 50	1598	Ap 71 5 00	.....	.....	.....	.....	.....	.....	3.30	.....	.....	.....	.....	.....
Hall-And's'n,N.S.	150	1		.....	7	Ja 82 05	.....	.....	.....	.....	.....	.....	2.00	.....	2.05	.....	.....	.....
Hecla Con., Mon.	30	50		.....	342	Ap 82 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hibernia, Co.....	300	25	*	.....	180	Jy 81 40	.....	.....	.....	.....	.05	.....	.....	.....	.....	.....	.05	.....
Homestake, Dk..	100	100	200	Ap 78 1 00	1662	Oc 82 40	.....	.....	.....	.....	.....	.....	.....	.....	17.50	.....	.....	.....
Horn-Silver, Ut..	400	25	*	.....	1700	No 82 75	.....	.....	.....	.....	8.63	8.50	8.38	.....	8.63	.....	.....	.....
Hukill, Co.....	200	5	*	.....	210	De 78 10	.16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indep., Ne.....	100	100	185	Fe 82 15	225	Se 79 05	1.35	.....	1.30	1.25	1.30	1.25	1.20	1.00	1.30	1.25	1.30	1.25
In. Queen, Ne....	125	2	12	No 79 10	355	Se 82 02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Inyo, Ca.....	100	5	*	.....	45	Ap 82 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iron Silver, Co...	500	20	*	.....	800	Oc 82 20	2.40	2.25	2.25	.....	2.30	.....	2.30	2.25	.....	.....	2.30	.....
Jocuistita,Mex...	100	100		.....	550	Au 82 1 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
La Plata, Co.....	200	10	*	.....	610	Se 82 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leadville C., Co..	400	10	*	.....	230	Au 82 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leeds, Ut.....	60	100	87	Ju 82 50	78	Oc 78 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Little Chief, Co..	200	50	*	.....	700	Au 80 50	.55	.....	.57	.....	.54	.....	.53	.52	.53	.....	.53	.52
Little Pitts., Co..	200	100	*	.....	1350	Mr 80 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	.....
Martin White, Ne	100	100	950	Se 82 25	90	Jy 79 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Moose, Co.	200	10	4	.....	550	Mr 78 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.06	.....
Morning Star, Co.	100	10		.....	515	Oc 82 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Navajo, Ne.....	100	100	235	Mr 82 20	50	Oc 82 25	5.50	.....	5.13	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. Y. & Colo., Col.	50	20		.....	25	Jy 79 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N'h'n Belle, Ne..	50	100		.....	2275	Oc 82 50	.....	.....	.....	.....	.....	.....	12.25	.....	11.50	.....	.....	.....
N. Belle Isle, Ne..	100	100	55	Se 82 15	45	Se 82 15	.....	.....	.10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ontario, Ut.....	150	100		.....	4700	Oc 82 50	36.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ophir, Ne.....	100	100	3395	Jy 82 1 00	1595	Jy 82 1 00	.....	.....	.....	.....	.....	.....	.....	.....	3.13	.....	.....	.....
Osceola, Mich.....	50	25		.....	810	Se 82 1 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plumas, Ca.....	100	10	*	.....	151	Jy 79 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quicks. Pref., Ca.	43	100		.....	654	Ju 82 6 00	.....	.....	.....	.....	40.00	.....	41.50	41.25	.....	.....	.....	.....
" Com., Ca.	57	100		.....	151	Ju 82 40	.....	.....	.....	.....	8.55	.....	9.00	8.50	.....	.....	.....	.....
Quincy, Mich.....	40	25		.....	3230	Au 82 5 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rising Sun, Ca...	150	5	*	.....	52	My 81 7½	.07	.....	.07	.....	.07	.....	.....	.....	.07	.....	.07	.06
Robinson C., Co..	200	50	*	.....	575	No 81 50	1.90	1.85	1.25	1.80	1.90	1.75	1.75	1.30	1.50	1.35	1.65	1.50
Robt. E. Lee, Co.	500	500		.....	50	Jy 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Savage, Ne.....	112	100	3692	Se 82 25	4460	Ju 69 3 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sierra Nev., Ne..	100	100	5050	Se 82 1 00	102	Ja 71 1 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.75	.....
Silver King, Ar...	100	100		.....	1175	Oc 82 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver King, Co...	500	2		.....	50	Au 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Socorro, N. Mex..	2.5	100		.....	4	Mr 82 ¾	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spr'g Valley, Ca..	200	1	*	.....	50	Ja 81 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Standard, Ca.....	100	100		.....	3950	Oc 82 25	.....	.....	.....	.....	.....	.....	4.50	.....	4.25	.....	4.75	4.50
Starr-Grove, Ne..	200	10	*	.....	161	Ju 81 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stormont, Ut.....	200	1	*	.....	155	No 81 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Joseph, Mo....	100	10	*	.....	370	Se 82 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tip Top, Ar.....	100	100	170	Mr 80 50	100	No 81 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tombstone, Ar....	500	25	*	.....	1350	Ap 82 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vizina, Ar.....	200	25		.....	140	Mr 82 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yellow Jacket...	120	100	5358	Fe 82 1 00	2184	Au 71 2 50	.....	.....	.....	.....	.....	.....	1.70	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Non-assessable. † The Deadwood has previously paid $275,000 in eleven dividends, and the Terra $75,000. ‡ 48175.

SALES.—Alice, 900; Amie Consolidated, 1?,800; Argenta, 200; Bodie Consolidated, 400; Bulwer, 400; California, 10,100; Chrysolite, 2347; Climax, 6800; Consolidated Virginia, 15,655; Eureka Consolidated, 10; Father de Smet, 100; Findley, 700; Gold Stripe, 600; Gould & Curry, 100; Grand Prize, 500; Great Eastern, 5700; Green Mountain, 1500; Hale & Norcross, 100; Hall-Anderson, 1200; Hibernia, 600; Homestake, 200; Horn-Silver, 415; Hukill, 400; Independence, 3910; Iron Silver, 6800; Little Chief, 3000; Little Pittsburg, 100; Moose, 5000; Navajo, 600; Northern Belle, 95; North Belle Isle, 100; Ontario, 100; Ophir, 100; Quicksilver, preferred, 500; Common, 240; Rising S n, 7800; Robinson Consolidated, 170,571; Sierra Nevada, 10; Standard, 380; Yellow Jacket, 100. Dividend shares sold, 261,133.

170,571 shares. The price of the stock has been manipulated to suit the brokers, being forced up one day and down the next; we quote from $1.95@$1.30@$1.65, closing at the latter figure to-day. Bradshaw has been quiet and weak, selling from 39@30c. Central Arizona has had a fair business at stronger prices, selling at 55@71c. Decatur has been very active and irregular, selling at 65@49@65c., with a business of 29,700 shares. Oriental & Miller has been very quiet at steady prices, selling at 15@13c. Silver Cliff continues very active at steady prices; the sales aggregate 12,800 shares, at 81@89@85c. South Hite has been active and steady at 34@31c. South Pacific has been very active at about steady prices, selling at 15@13c. The State Line stocks have been very quiet and steady. Nos. 1 and 4 sold at 6@5c. and Nos. 2 and 3 at 19@18c. Taylor-Plumas has been active and strong at 16@15c.

The Lake Valley stocks have declined, and are now quoted to us by Messrs. Watson & Gibson at $3.90@$4.10 for Sierra Grande, 58@70c. for Sierra Apache, and $1.10@$1.20 for Sierra Bella. The dividend on the Sierra Grande has, it is reported, been postponed until the 24th inst. It is rumored that the 28th inst. is the date at which the option of a number of English capitalists to take the controlling interest of the stock expires. It is stated that the figure is $10 per share.

The Prussian Mining and Milling Company is a new stock recently listed on the New York Board. The property is located in the Gold Hill Mining District, Boulder County, Colo., and comprises two claims, the Prussian and Pittsburg lodes, both 1500×150 feet. Nearly $30,000 have been expended in surface and underground improvements, and dividends to the amount of $85,500 have been paid by the company to date.

The Boston *Herald* says that the affairs of the New England Smelting Company, organized under the Maine laws, are in a precarious condition, brought about by the action of T. Brigham Bishop, its president, who has paid forced dividends on the stock by borrowing money from outside parties. Some of the loans, falling due, have not been paid, and part of the company's property has been attached.

DIVIDENDS.

Boston & Montana Gold Mining Company, of Montana, has declared a dividend (No. 15) of $10,000, or five cents per share, payable November 6th, at Boston. Transfer-books close October 28th and open November 7th.

The Evening Star Mining Company, of Colorado, has declared dividend No. 53, of five per cent, on its capital stock, payable October 24th to stockholders of record October 21st.

The Father de Smet Consolidated Gold Mining Company, of Dakota, has declared its dividend (No. 23) of twenty cents per share, payable at the office of Laidlow & Company, No. 14 Wall street, New York, November 1st. Transfer-books will close on October 23d.

The Great Western Quicksilver Company has declared a dividend (No. 18) of twenty-five cents per share, payable immediately.

The Horn-Silver Mining Company, of Utah, has declared a quarterly dividend (No. 7) of $300,000, or three per cent., payable November 15th. Transfer-books close November 6th and reopen November 16th.

The Morning Star Consolidated Mining Company, of Colorado, has declared dividend No. 13 of two and a per cent, payable October 25th to stockholders of record October 21st.

MEETINGS.

Carbonate Hill Mining Company, 115 Broadway. Annual meeting of stockholders and election of trustees November 9th, at one P.M Books close October 31st, open November 10th.

Chrysolite Silver Mining Company, 18 Wall street. Annual meeting of stockholders and election of trustees November 1st, at twelve M. Polls open twelve M. to two P.M. Books close October 25th and open November 2d.

Colorado Central Consolidated Mining Company, 29 Broad street. Annual meeting of stockholders and election of officers November 9th, at eleven A.M. Polls open twelve M. to one P.-M. Books close November 6th, open November 10th.

Emerald & Hiddenite Mining Company, 192 Broadway. Annual meeting of stockholders and election of officers November 1st, twelve M.

Idaho Gold and Silver Mining Company, 25 Nassau street. Annual meeting of stockholders and election of trustees October 25th, at twelve M.

New Castle Coal and Mineral Land Company, 54 William street. Special meeting of stockholders November 18th, at twelve M., to elect trustees and vote on proposition to lease certain of its lands.

United Coal and Coke Company, 58 South Third street, Philadelphia, Pa. Annual meeting of stockholders October 27th.

Copper and Silver Stocks.

Reported by C. H. Smith, 15 Congress street, Boston, Stock Broker and Member of the Boston Mining and Stock Exchanges.

BOSTON, Oct. 19.

There is no sign of improvement in the market for mining stocks, and the past week, like many of its predecessors, has been extremely dull and featureless. Prices are generally firm, especially for the Lake Superior copper stocks, although sales are light, and the fact that so few of this class are pressed for sale is indicative of a better market in the future. Ingot copper holds quite firm at 18@18¼c., and this tends to keep the market steady for the dividend-paying mines. Calumet & Hecla declined to $251, and later to $245, ex dividend of $5 per share, but subsequently advanced to $248, which is a gain of $1 over closing price of last week. Franklin declined from $16@$15⅝, but on a small sale advanced to $16⅛. Pewabic also declined from $11¾@$11¼. Quincy has ruled very strong and in good demand, and advanced from $67½@$68, at which price there is but little stock offering. Osceola declined from $36@$35, on very light sales. Atlantic and Huron, neglected; no transactions reported in either for the week. Ridge sold at 75c.; Allouez, at $2¾; and Copper Falls, at $2. Brunswick Antimony, steady at $10.

The silver stocks have partaken in the general dullness of the market, and the transactions at the Stock Exchange have been unusually light. Bonanza sold at $3⅛. Catalpa opened at $1.27½, declined to $1.15, and again advanced to $1.30, with sales of only about 3000 shares. Crescent declined to 42½c., and advanced to 50c.; rest of the list neglected.

At the Mining Exchange there has been no special feature, and the market has ruled generally dull and inactive Empire, steady at 43@45c.; Massachusetts & New Mexico, at 22@24c. Sycamore declined to 35c. Catalpa and Crescent at ruling prices at the regular Stock Exchange.

3 P.M.—At the afternoon session, Atlantic sold at $16½, and was offered at same price. Calumet & Hecla offered at $248; Osceola at $35; Pewabic sold at $ 0⅛, closing $10½ bid, $10⅞ asked. Quincy, $68½ bid, without bringing out any stock. Catalpa, $1.25 bid, $1.27½ asked; Crescent, 45c. bid, 50c. asked; Harshaw, $11½ asked; Huron, $3 asked; Silver Islet, $13 asked; Sullivan, $2¼ bid, $2½ asked; Bonanza, $3 7-16 bid, $3½ asked; National, $1½ bid; San Pedro, 42½c bid, 50c. asked; Allouez, $2½@$3.

REVIEW OF THE SAN FRANCISCO MARKET.

The decline in the Comstock shares in the San Francisco market continued during the early part of the week; but toward the close, the stocks rallied a little, and yesterday found them in a better condition for stronger prices during the coming week. The news from the mines, however, is not of the most encouraging nature, it being reported that a new and expensive pump will be needed for the Union Consolidated, and that the drift in the Chollar is a failure. The outside stocks have been active and steady, although many have had to realize on these stocks in order to keep their margins good on the Comstocks.

SAN FRANCISCO MINING STOCK QUOTATIONS.
Daily Range of Prices for the Week.

NAME OF COMPANY.	CLOSING QUOTATIONS.					
	Oct. 13.	Oct. 14.	Oct. 16.	Oct. 17.	Oct. 18.	Oct. 19.
Alpha	1¼	1⅛	1⅛	1⅛	1¾	1¼
Alta	19-32	½	1½	½	21-32	9-16
Bechtel						1-16
Belcher	11-16	19-32	19-32	1⅛	15-16	15-16
Best & Belcher	5⅝	5½	5⅝	5⅝	5⅞	5⅞
Bodie	3½	3⅝	3¼	3⅛	3¼	3¼
Bullion	13-32	¼	13-32	½	7-16	13-32
Bulwer		1⅛		1⅛		1⅛
California	¼	5-16	¼	5-16	¼	5-16
Chollar	1¼	1	13-16	15-16	1	⅞
Con. Virginia	21-32	9-16	19-32	11-16	⅞	21-32
Crown Point	1½	1½	1¼	1⅞	1⅝	1⅝
Eureka Con	12⅝	12⅝	12	11¾	11¾	11½
Exchequer	¼	¼	¼	11-32	13-32	11-32
Gould & Curry	3¼	3	2¾	3	3¼	3
Grand Prize	21-32		9-16	7-16	½	7-16
Hale & Norcross	1⅞	1½	1⅜	1½	1½	1½
Manhattan						
Martin White	4½			4⅜	4⅝	4⅜
Mexican	4	3¾	3¾	4	3⅞	3¾
Mono	11-32		11-32	11-32	13-32	7-16
Mount Diablo	4	4		4		
Navajo	5¾	5½	5¾	5⅞	5⅞	5⅞
Northern Belle	13	12½	12	11½	12	12
Noonday	5-32		3-16		3-16	3-32
Ophir	3	2¾	2⅝	3	3	2⅞
Oro	5-32		5-32		5-32	3-16
Overman	3-16	3-16	5-32	11-32	¼	¼
Potosi	13-16	19-32	29-32	1⅛	1⅛	1⅛
Savage	1¼	1	29-32	1	1	15-16
Scorpion	11-16	11-16	19-32	11-16	¾	¾
Sierra Nev	4⅝	4½	4⅜	5	4¾	4⅞
Silver King		12½	12½		12½	
Tip Top				2		
Union Con	4½	⅛	4½	4¾	4¾	4½
Wales Con						
Yellow Jacket	1⅝	1¼	1¼	1½	1½	1⅝

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Oct. 20.

American Pig.—The transactions in the open market, limited as they are naturally by the fact that furnaces are sold well ahead, are further restricted by a tendency on the part of buyers to hold off as much as possible. Standard brands remain as before, $25.50@$27 for standard brands of No. 1, No. 2 being $23.50@$25. Gray Forge remains quiet at $20.50@$21.50 at furnace. No business has been done in Bessemer pig, which remains nominally $24. At English shipping ports, Bessemer pig is quoted 56s. 6d. Spiegeleisen here is dull and lifeless at $29@$29.50 for 10 to 12 per cent.

Scotch Pig.—Although the demand is light, the market is tolerably firm for spot lots, the supply being limited. The arrivals are light, about 2000 tons, mostly sold ahead. Freights are 11s. for November and December. Sales during the week aggregate 1000 tons in small lots at quotations, which are, for spot: Eglinton, $23.25@$23.50; Glengarnock, $25.25@$25.50; Carnbroe, $24.50; and Gartsherrie, $25.75@$26. Cables to the Iron and Metal Exchange make Warrants at Glasgow, 50s. 9d.; Carnbroe, 57s. 6d.@58s.; Langloan, 66s. 6d.@67s.; Summerlee, 64s. 6d.@65s.; Gartsherrie, 64s.@64s. 6d.; Coltness, 69s.@69s. 6d., at Glasgow; Glengarnock, 57s. 6d.@58s.; and Eglinton, 52s. 6d.@53s. at Ardrossan.

Rails.—We hear that some of the Eastern mills are not fully supplied as yet. Buyers are holding off, expecting lower prices. There is some business doing in a small way on the basis of $45@$46 for early delivery, while for later contracts $44@$45 may be regarded as a fair nominal quotation. We print elsewhere an article showing that over-production is not as great as the majority of buyers seem to believe, and we doubt the wisdom of holding off too long for any further decline. England cables rails irregular at £5, and blooms nominally at the same price.

Old Rails.—Owing to the slight stocks here and a limited demand, business is very slight and confined to Ts, there being no D. Hs. We quote nominally $27@$27.50.

Scrap.—There has been only moderate inquiry. We quote nominally $28 $29 ex ship for No. 1.

NON-DIVIDEND PAYING MINES.

NAME AND LOCATION OF COMPANY.		NUMBER OF SHARES.	Par.	ASSESSMENTS. Total levied to date.	ASSESSMENTS. Date and amount of last.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. Oct. 14. H.	Oct. 14. L.	Oct. 16. H.	Oct. 16. L.	Oct. 17. H.	Oct. 17. L.	Oct. 18. H.	Oct. 18. L.	Oct. 19. H.	Oct. 19. L.	Oct. 20. H.	Oct. 20. L.
Advance	Nev.	150,000	100	397,500	Jun. 82	25											
Ailouez	Mich																
Alpha	Nev.			420,000	Mar. 82	50											
Alta	Nev.	100,800	100	1,641,600	May 82	50						90c					
Alta-Montana, G	Mon.	500 000	10	*			30c		25c				20c		19c		20c 15c
Am. Flag, S	Colo	125,000	10	300,000	Jun. 77	25											
Barcelona, G	Nev	200,000	25	*					7c								
Battle Creek																	
Bear Creek	Cal.	300,000	1				25c						25c		25c		20c
Beauce																	
Bechtel Con., G	Cal.	100,000	100	165,000	Dec. 81	25											
Best & B'licher, G, S	Nev.	100,800	100	1,295,390	Jul. 82	50				5.83	5.50						
Big Pittsburg, S, L	Colo	200,000	100	*													
Black Jack, G	Cal.	100,000	2½														
Bonanza Chief	Mon	1,000,000	1	*													
Bondholder	Colo	200,000	2½														
Boston Con., G	Cal.	100,000	100	70,000	May 82	20											
Boulder Con									2c								
Bradshaw, S	Ariz	225,000	10						39c		35c	32c	34c	32c	35c	30c	
Buckeye	Colo	100,000	5	*													
" pref									26c								
Bull-Domingo, S, L	Colo	200,000	50	*					6c								
Bullion, G, S	Nev.	100,000	100	3,697,000	Aug. 82	50											
Bye and Bye	Ariz	100,000	10	*													
Calaveras, G	Cal.	500,000	1	*						6c					6c		
C'lav'r's W.&M.Co	Cal.																
Cal., B. H., G	Dak.	100,000	100	480,000	Au. 82	15											
Carbonate Hill, S, L	Colo	200,000	10														
Catskill, S	Nev.	300,000	5														
Central Ariz'na, S	Ariz	100,000	100				55c		50c	55c		65c	60c	71c	70c		
Chapparal	Cal.								3c							3c	2c
Cherokee, G	Cal.	150,000	10				18c	16c	23c	18c	21c		20c	18c	20c	20c	19c
Chollar					Sep. 82	50											
Clarence	Can.																
Colorado Cent'l, S	Colo	300,000	10														
Col'mb'a Con., G, S	Nev.	100,000	50														
Cons. Imp'r'l, G, S	Nev.	500,000	100	1,425,000	Jan. 82	10	5c		5c								
Con. Pacific, G	Cal.	60,000	100	141,000	Au 82	25											
Crescent, S, L	Colo	300,000	10	*													
Crowell, G	N. C.	50 000	1						5c		5c		5c		5c		5c
Dahlonega, G	Ga.	250,000	1	*													
Dardanelles, G	Cal.	100,000	10														
Decatur																	
Dunderberg, S	Colo	150,000	10	*			65c	59c	60c	50c	51c	49c	53c	49c	62c	50c	66c 58c
Durango, G	Dak.	500,000	1	*													17c
Eastern Oregon									9c		8c				9c		9c
Empire, S	Ut'h	100,000	100														
Enterprise	Colo																
Exchequer	Nev.	100,000	100	630,000	Jan. 82	25	60c		61c	60c	60c				61c	60c	62c 60c
Globe Copper	Ariz.												3c		3c		3c
Gold Placer, G	Colo	200,000	25	*													
Goodshaw, G	Cal.	100,000	100	190,000	Sep. 82	10											
Granville, G	N. C.	800,000	1	*													
Harshaw, S	Ariz	100,000	100														
Head Center, S	Ariz	100,000	100	160,000	May 82	20											
Hortense, S	Colo	200,000	10							13c							
Index	Cal.																
Julia, G, S	Nev.	110,000	100	1,391,000	Jan. 82	20											
Kossuth, G, S	Nev.	108,000	100	421,200	Aug. 77	15											
Lacrosse, G	Colo	100,000	10									18c					
Leviathan, S	Nev	100,000	100	380,000	Sep. 82	25											
Lucerne, S	Colo	500,000	10	*													
Mariposa Pref., G	Cal.	50,000	100	1,687,500	Dec. 81												
" Com., G	Cal.	100,000	100	1,950,000	Feb. 82				12c								
May Belle, G	Cal.	100,000	100	84,000	Dec. 81	20											
Mayflower, S	Colo	100,000	100	*													
Mexican, G, S	Nev.	100,800	100	2,146,800	Oct. 82	$1				3.88		3.85		4.00			
Michoacan Synd.	Mex.																
Miner Boy, G, S, L	Colo	500,000	10	*						3c	2c	3c				4c	3c
Miller	Nev.	200,000	25														
Mono, G	Cal.	50,000	100	512,500	Sep. 82	25											
Moose Silver, S	Colo	300,000	10														
Nevada Syndi																	
North Standard, G	Cal.	100,000	100	20,000	Nov. 81	10											
N. Hora-Silv'r, S, L	Utah	400,000															
Noonday	Cal.	60,000	10	148,000	Sep. 82	25				15c		45c					
Old Dominion, G	Ariz	200,000	100	*													
Oriental	Nev.	200,000	10														
Ori'nt'l & Miller, S	Nev.	400,000	25				15c	14c	14c					13c			
Overman, G, S	Nev.	115,200	25	3,604,700	May 82	25											
Potosi	Nev.	112,000	100	476,000	Sep. 82	25						1.30					
Quartz Creek			100						11c					14c			
Rappahannock, G	Va.	250,000		*						12c		13c					
Red Elephant, S	Colo	500,000	1	*													
Retort			10														
San Pedro, G, S, L	N. M	400,000															
Silver Cliff, S	Colo	200,000	25	*			87c	86c	85c	84c	88c	81c	88c	87c	89c	85c	86c $4c
Silver Islet	Can.		50														
Sonora	Mex.																
South Bodie, G	Cal.	100,000		100,000	Mar. 82	15											
South Bulwer, G	Cal.	100,000	100	195,000	May 81	25											
South Hite	Cal.	100,000	100		May 82	10	34c	32c	32c	31c	31c	30c	33c		32c		31c
South Pacific	Cal.		5				14c		15c	14c	14c		15c	14c	15c	13c	13c
State Line No. 1, S	Nev.	200,000	1														
" No. 2, S	Nev.	200,000	25														
" No. 3, S	Nev.	200,000	25														
" No. 4, S	Nev.	200,000	25														
" Nos. 1 & 4, S	Nev.		25						6c		6c				5c		6c
" Nos. 2 & 3, S	Nev.						19c		18c		18c		18c		18c		
Sutro Tunnel	Nev.	2,000,000		*			30c		30c	29c	30c	29c	31c	30c	31c	30c	30c 28c
Taylor-Plumas			10				16c	15c	16c	15c	16c	15c	16c		16c	15c	15c
Tioga, G	Cal.	100,000		275,000	Jul. 82	10					6c						
Tuscarora, S	Nev.	100,000	100	110,000	Oct. 81	15	8c	7c	9c	8c	9c	8c	8c		8c		
Unadilla, S	Colo	500,000	100	*			5c								4c		
Union Cons., G, S	Nev.	100,000	1	1,380,000	Mar. 82	$1											4.75
Utah	Nev.	20,000	100	1,340,000	Oct. 82	$1											
Vandewater, S	Nev.	200,000	100	*					21c								
Washington, S	Ariz.	200,000	10														
Whalen Copper	Nev.	100,000	25				21.00	20.50	20.75	20.50	20.75	17.00	21.00	20.50	21.00		21.00
Wide West																	
Willshire, G	Cal.	50,000	5	*													

* Non-assessable.

SALES.—Alta, 100; Alta-Montana, 2300; Barcelona, 500; Bear Creek, 900; Best & Belcher, 150; Boulder Consolidated, 500; Bradshaw, 4400; Buckeye, preferred, 500; Bull-Domingo, 1000; Calaveras, 3000; Central Arizona, 2400; Chapparal, 41,300; Cherokee, 6800; Consolidated Imperial, 1600; Crowell, 6100; Decatur, 29,700; Dunderberg, 200; Durango, 3500; Enterprise, 9000; Globe Copper, 4700; Hortense, 100; Lacrosse, 500; Mariposa, common, 500; Mexican, 335; Miner Boy, 13,000; Noonday, 200; Oriental & Miller, 2200; Potosi, 100; Quartz Creek, 1000; Rappahannock, 1800; Silver Cliff, 12,800; South Hite, 11,000; South Pacific, 57,900; State Line, Nos. 1 & 4, 2800; Nos. 2 & 3, 6100; Sutro Tunnel, 27,400; Taylor-Plumas, 40,800; Tioga, 100; Tuscarora, 20,200; Unadilla, 1800; Union Consolidated, 10; Vandewater, 1000; Whalen Copper, 915. Non-dividend shares sold, 321,200. Total shares sold at all the Exchanges, 582,333.

Philadelphia. Oct. 20.

Buyers of all kinds of iron and steel are still holding back. The week's transactions foot up a small total as compared with September business. Manufacturers are not apprehensive at all as to the outlook, and are quietly awaiting the result of recent influences which have contributed to the present inactivity. Both sides are waiting for developments. Consumers' requirements are pretty well covered for this and next month, and producers have the output for that period under contract, hence there is no necessity for urgency on either side. The little surplus above the filling of contracts of both finished and crude iron is readily disposed of at current rates. There is no appreciable accumulation of stocks. The Western markets are improving gradually. Large orders are held back, and immediate requirements provided for.

Pig-Iron.—To-day's quotations are $25@$27 at furnace for common to best; $25.50@$26.50 for the average sales. The better brands continue scarce, and the commoner ones are to be had as rapidly as

BOSTON MINING STOCKS.

	Oct. 12.		Oct. 13.		Oct. 14.		Oct. 16.		Oct. 17.		Oct. 18.		Sales.
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Allouez									2¾				40
Atlantic													
Aztec													
Blue Hill													
Bodie Con.													
Bonanza D.	3.50												200
Bruns. Ant.					10.00								50
Bulwer													
California	.30												200
Cal. & Hec.	252		252		251		245		246¼	246			88
Carbon. Hill													
Catalpa	1.27½	1.25	1.27½	1.25	1.25	1.20	1.17½		1.17½	1.15			3,330
Central Ariz													
Cherryfield													
Chrysolite													
Con. V'ginia	.81												500
Copp'r Falls	2.50												100
Crescent	.50								.45	.42½			800
Cumberl'd													
"Cusi"													
Deer Isle													
Denver City													
Duncan													
Dunkin													
Empire	.45	.44											2,100
Eureka	*												25
Franklin	16.00		16.00	15⅞	15½		15⅝						514
Hancock G.													
Harshaw													
Homestake													
Horn-Silver													
Huron	3.75	3⅛											500
Indian Q'n													
Little Pittsb													
Madison	.30												500
Mammoth													
Mass. & N.M.	.25	.24											1,200
Milton													
National													
North. Belle													
Osceola	36.00		36.00				35½		35	34½			33
Penn-Breck.													
Pewabic	11¾		11¾				11⅛	11¼					452
Pine Tree	.28	.27											600
Plymouth													
Quincy			68.00	67½			68		68				221
Ridge	1.00								.75				200
Robinson	1.77												100
San Pedro													
Sierra Nev.													
Silver Islet													
So. Pacific	.14												500
Standard													
Star Copper													
State Line													
Nos. 2 & 3	.18												500
Stewart													
Sullivan													
Sutro Tun.													
Sycamore													
Twin Lead													
Vizina													

* 13 9-16.

PHILADELPHIA MINING STOCKS.

	Oct. 13.		Oct. 14.		Oct. 16.		Oct. 17.		Oct. 18.		Oct. 19.		Sales
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
American			.01										6,000
Argent	.20		.19		.20		.20		.20				14,500
Arizona So.													
Aztec													
Battle Mt.			.03		.03		.02		.03				12,600
Black Sul.			.02										10,000
Buena	.6		.05		.04		.04		.04		.04		21,800
California													
Calista													
Cincinnati													
Comprom'e	.30				.25						.23		900
Cons. Va													
Dauntless			.03										2,0 0
Del Monte													
Denver City	.22		.20		.25		.26	.23	.22		.25		16,226
Fairview							.01				.01		1,400
Eureka													
Girard	.23				.23		.22	.21	.22		.21		9,600
Golconda							.01						1,000
Golden Age													
Governor					.09	.06	.08	.07	.07		.06	.07	11,300
Grand Uni'n	.08										.07		8,000
Gunnison	.82½		.82½										3,500
Hancock													
Hibernia													
Intervener													
Iowa Gulch.	.13		.13		.15	.11	.11		.12	.11	.11		25,720
King Bul'on													
Ledger Con.													
Little Dia'd.													
Little Maud													
L'g & D'y Hl	.01										.01		16,000
McCullough													
Magnolia	.02	.01					.01		.01		.01		43,500
Montana													
Mt. Lincoln							.01						500
Mt. Sheridan	.05				.05		.05		.05		.05		15,000
National							.01						5,000
Orion							.12						100
Palmetto E.													
Pembina	.82½	.75	.75		.80		.80				.80		7,200
Penn-Breck.	.23	.23	.23		.21		.22	.20			.20		3,500
Permanent													
Pizarro							.01				.02		3,500
Pizarro Ex.													
Potosi													
Rara Avis			1.05		1.05		1.02½		1.00				2,500
Rara Avis E.	.08	.07			.07		.06						8,000
Rico Pion'r.													
San Pedro			.02										5,500
Silver Cord									.65				2,200
Sil'r Plume					.03								1,500
Silver Rock													
Standard													
Sultana			.03										3,000
Sutro Tun'l.	.30		.30						.30		.32½		2,000
Tombstone	.87½		.85		.82½	.77½	.90	.80	.95	.92½	.95½	.95	15,080
Tranquilli'y			.50										500
Tyrone													
Union Con.													
Victor													
Yale Mt.	.60		.55		.55				.55		.55		2,700

required. The apparent over-supply of pig in the West has made it more difficult for sellers in the East to maintain firm prices; but so far as known, very few concessions have been made. The present outlook points to weakness. In the absence of any very active demand, it is impossible to give inside figures for late deliveries. No. 2 iron is selling at $22.50@$24 at furnace, and makers are accumulating a little surplus for future contingencies. A number of inquiries were received this week from New England buyers and others, containing some offers for December and later consumption, and it is probable that buyers will be able to obtain winter stocks on terms somewhat more favorable than heretofore. This possibility leads to a little hesitation on both sides; for prompt delivery, however, quotations are firm all around. Gray Forge is quoted as low as $20 at furnace to $22 the highest; but very little has been heard of above or below $21. A number of large consumers have about exhausted their stocks, but will not buy very largely for a few weeks, as they consider the chances favorable to lower prices; the natural tendency points in that direction. The firmness of the foreign markets and the limited export of crude iron check the tendency downward. Three or four large lots sold this week for $21 for best brands of Forge, but the bulk of the transactions were small, running from 50 to 100-ton lots. Very little is done in Scotch; prices run from $23.50@$27.50. Foundry and Forge consumption is as heavy as at any time for several months, but consumers are, perhaps, more cautious than at any time. If there is any accumulation in consequence, the effect of this is not perceived on the market. Bessemer pig is dull, and quoted at $24@$24.50. There are requirements presented, but the outside figures offered are $23.50. A few small lots have been reported.

Muck Bar.—A number of transactions of 50 to 100-ton lots for future delivery were closed at $42@$42.50. The tendency of prices is downward, and $41.50 has been offered, but held under advisement.

Blooms.—Anthracite and charcoal blooms are moving a sluggish way at $58@$68 respectively. The bloomaries are well supplied with orders, and these figures will probably be maintained through the year.

Merchant Bar.—All of the mills are well supplied with orders, but December orders are coming in slowly. The card is 2·6c. Small lots are sold at that figure, and stores are selling in a retail way between 2·6@2·7c., with a tendency to the lower figure. Considerable business has drifted to country mills at 2½c., and the chances are, that this figure will be the ruling price for city sales in a few weeks. Western mills are filling up slowly, and buyers are acting on the belief that the market will gravitate in their favor.

Nails.—The Atlantic Association holds quotations firmly at $3.65@$3.75, but will probably reduce quotations at its next meeting. A few firms are cutting card rates for December. Business has been done at $3.60, and there are offers for large lots in hand for $3.50. Western buyers are placing orders here, sharp delivery, $3.65 at factory. The demand is very strong, and will continue, perhaps, for thirty days, when the rush will be over.

Structural Iron.—Business continues of moderate dimensions and quotations are easier at 2·9c. for Angles, 3·8c. for Tees, 4c. for Beams, and 4·2c. for Channels. Two or three large orders have been submitted for winter work, and will probably be placed at something less than these figures.

Plate and Tank Iron.—The downward tendency in quotations continues for late delivery. Small Tank orders have been placed at 3@3·2c.; Shell iron, 3·34@4c.; Flange, 4·34@5c. The local demand is active. Wrought pipes and boiler tubes are in very urgent demand, and capacity is fully engaged. Discounts unchanged.

Steel Rails.—No large transactions have been reported, although several inquiries are in hand which are likely to result in business as soon as both sides can come to terms. Buyers look for sharp concessions, and anticipate their circumstances will oblige lower prices to be named. Makers, on the other hand, show no anxiety to secure business by cutting prices. Several small lots were booked at $46. For large lots $44@$45 is named. Steel Blooms are under negotiation at $35@$36. A few small lots of T rails sold at $27.25. The scarcity gives the brokers the advantage, and the outlook is not favorable for large business or better prices. Double-heads would sell at $29.50. Western buyers have offers in the market, and as soon as stocks can be secured, sales will be made. Domestic rails are very scarce, and a few sales were heard of in the interior at $28@$29. Scrap is moving quietly in small lots at $28@$30 for Selected. Lower grades are unchanged and dull. Crop Ends, $24@$24.50.

BULLION MARKET.

NEW YORK, Friday Evening, Oct. 20

Under a limited demand from the continent, the silver market in London advanced at the beginning of the week, but is already weaker, with indications of lower prices as more than probable.

DATE.	London Pence.	N. Y. Cents.	DATE.	London Pence.	N. Y. Cents.
Oct. 14	51 11-16	112¾	Oct. 18	51 15-16	‡
Oct. 16	*	†	Oct. 19	51 15-16	‡
Oct. 17	51⅞	113	Oct. 20	51⅞	113⅛

*51 11-16@51⅞. †112⅝@1 12⅞. ‡113⅛@113¼

BULLION SHIPMENTS FROM THE LEADVILLE SMELTERS AND MILLS.

SMELTERS AND MILLS.	Third quarter of 1882	Total since Jan. 1st, 1882.
American Mining and Smelting Company	$315,467	$888,587
Arkansas Valley Smelter	627,985	2,161,641
Antioch Mill	2,500	2,500
Cummings & Finn Smelter	609,879	1,474,696
Eddy, James & Co.	1,245,818	1,982,098
Elgin (Grant Smelting Co.)	343,317	1,682,230
Harrison Reduction Works	477,217	1,309,430
La Plata M. & S. Co.	641,677	1,835,784
Leadville Milling Company	100,184	250,709
Shields Milling Company	23,000	56,005
Tabor Milling Company	57,057	206,171
Total	$4,444,101	$11,849,851

Foreign Bank Statements.—The governors of the Bank of England at their regular weekly meeting, made no change in the bank's minimum rate for discount, and it remains at 5 per cent. During the week, the bank lost £8200 bullion, but the proportion of its reserve to its liabilities was raised from 32½ to 35 11-16 per cent against 35⅝ per cent at this date a year ago. October 19th, the bank gained £10,000 bullion on balance. The weekly statement of the Bank of France also shows a heavy loss of specie; 1,935,000 francs gold, and 4,275,000 francs silver.

Bullion Receipts at New York.—The bullion received

from the mines at the various offices in this city during the week ended October 20th, as compiled from various sources, amounted to $145,000, as against $347,000 reported for the previous week. The receipts from January 1st, 1882, to date, are $11,244,059.51.

Exports and Imports of Gold and Silver at New York.

Exports.

Week ended October 14th	$25,700
Corresponding week last year	177,845
Since January 1st, 1882	44,327,545
Corresponding period last year	8,965,221

Imports.

Week ended October 14th	$437,827
Corresponding week last year	1,787,304
Since January 1st, 1882	3,803,822
Corresponding period last year	48,565,358

BULLION PRODUCTION FOR 1882.

We give below a statement showing the latest bullion shipments. These are officially obtained from the companies, where that is possible; and where official statements can not be procured, we take the latest shipments published in those papers nearest to the mines reported. The table gives the amount shipped for the week up to the date given, as well as the aggregate shipments to such date from the first of January, 1882.

The shipments of silver bullion are valued at $1.29·29 per ounce troy: gold at the standard $20.67 per ounce troy. The actual value of the silver in the following table is therefore subject to a discount, depending on the market price of silver. If the price of silver be counted at $1.12 per ounce, which has for some months been about its average value, the following figures, where they relate to silver bullion, should be diminished by about 13½ per cent to arrive at actual value.

MINES.	States.	For the week.	Month of October.	Year from Jan. 1st, 1882.
*Alice, G. S.	Mont.			$570,199
*Alta-Montana, G. S. L.	"			303,996
Barbee & Walker, S.	Utah		3,116	67,142
Betty O'Neal, S.	Nev.			59,220
*Black Bear, G.	Cal.			54,938
Bodie, G. S.	"	10,600	20,070	317,504
*Boston & Montana, G.	Mont.			208,950
*Caledonia, G.	Dak.			62,235
*Caribou, S.	Colo.			126,918
*Central Arizona, S.	Ariz.			140,154
*Christy, S.	Utah			214,600
*Chrysolite, S. L.	Colo.			278,908
Cons. Bobtail, G.	"			83,477
*Contention, S.	Ariz.			1,411,049
Crismon-Mammoth, G.	Utah			2,750
*Custer, G. S.	Idaho			619,258
*Deadwood-Terra, G.	Dak.			491,481
*Derbec Blue Grav., G.	Cal.			107,026
*Eureka Con., G. S. L.	Nev.	15,470	15,470	648,327
Evening Star, S. L.	Colo.			642,520
Father de Smet, G.	Dak.			281,637
*Frisco M. & S. Co., S. L.	Utah			271,473
Girard, S.	Ariz.			90,964
Grand Central, S.	"			905,000
*Hall-Anderson, G.	N. S.			7,301
Head Center, S.	Ariz.	6,330	12,450	103,397
*Homestake, G.	Dak.			882,651
Horn-Silver, S. L.	Utah	82,500	147,500	2,727,290
*Hope, S.	Mont.			240,145
Idaho, S.	Cal.			395,540
Independence	Nev.	4,000	4,000	4,000
*Indian Queen, S.	"			138,697
Inyo Cons., G.	Cal.			46,421
Ingersoll, S.	Ariz.			90,000
Iron Silver, S.	Colo.			865,436
*Jocuistita, S.	Mex.			600,419
*†Leeds, S.	Utah			11,988
*Little Pittsburg, S. L.	Colo.			118,543
Manhattan, S.	Nev.			64,300
Morning Star, S. L.	Colo.			333,126
Mount Diablo, S.	Nev.			179,445
*Navajo, G. S.	"		16,000	152,288
New York Hill, G.	Cal.			56,256
Noonday, G.	"			57,690
North Noonday, G.	"			56,545
Northern Belle, S.	Nev.	20,516	39,289	605,224
*†Ontario, S. L.	Utah			1,935,048
Ophir, G. S.	Nev.			39,472
*Oxford, G.	N. S.			13,420
Pascoe, S.	Utah			4,575
*Pleasant Valley, G. S.	Cal.			8,267
Robert E. Lee, S.	Colo.			292,550
Savage, S.	Nev.			3,500
*Silver Bow, G. S.	Mont.			186,875
Silver King, S.	Ariz.			258,632
*Spring Valley, G.	Cal.			152,000
Standard, G.	"	37,300	74,400	865,361
Star, S.	Nev.	2,400	2,400	42,296
Stormont, S.	Utah	2,500	5,530	233,974
Syndicate, G.	Cal.	10,500	10,500	29,929
Tintic M. & M. Co.	Utah			4,480
*Tip Top, S.	Ariz.			191,034
*Tombstone, G. S.	"			590,286
Union Con., S.	Nev.			217,623
Vizina, S.	Ariz.			143,200
Total amount of shipments to date				$20,908,950

*Official. †Net. ‡Assay value. *G. Gold. S. Silver. L. Lead.*

METALS.

NEW YORK, Friday Evening, Oct. 20.

Copper.—We have no new feature to report, the market remaining in the same condition as heretofore, with Lake nominally at 18@18½c., and Baltimore and Arizona brands nominally at 17½@17⅝c. London has receded a little, the latest being £70 55s. We may note the fact that recently from 300 to 400 tons of copper matte, smelted from imported pyrites, were shipped to England from this port.

Tin.—The prospect of heavy arrivals, 800 tons being due in one ship, has had the tendency to weaken the market, which we quote 23½@23¾c. for spot Straits; 23½@24c. for Australian; and 24c. for Lamb & Flag. Sales during the week have been on a limited scale. London to-day cables £104 15s. for Straits.

Lead.—Under free offerings, this market has weakened considerably, and Common lead is readily procurable for 5c., large lots, without finding takers. In a jobbing way, 200 to 300 tons sold down from 5·10@5·5c. We quote nominally for large lines, 5c. for Common. Nothing has been done in Refined.

Messrs. John Wahl & Co., of St. Louis, wire us as follows to day:

The demand is only moderate, and there is very little doing. Buyers, expecting a decline, are holding off and take only to cover immediate wants. We quote Soft Missouri 4·65c., and Hard lead 4·62½c. Receipts foot up to 850 tons, against 800 tons during the previous week.

It will be seen that the Western market is showing a declining tendency.

Spelter.—This metal continues dull and lifeless. We quote 5·30@5·40c. for Domestic and 5·35@5·50c. for Foreign, the latter nominally. The importations of foreign thus far are not quite as heavy as expected, footing up to date to 8425 tons. London cables £172 6s. d.

Antimony.—The market remains quiet and steady at 12⅞c. for Cookson's, 12½c. for Nevada, and 10⅞c. for Hallett's.

Quicksilver.—The demand here is moderate, and quotations remain unchanged at 39@39½c. London cables £5 17s. 6d., a decline, and San Francisco is 37½@38c.

The "A" brand is held firmly at 38c., otherwise 37½c.: London price, £6 per bottle.

The exports by sea for the month of September, and from January 1st to October 1st, 1882, were as follows:

	—In September—		—Nine months—	
	Flasks.	Value.	Flasks.	Value.
China	1,600	$46,191	18,351	$528,773
Mexico	452	13,170	5,935	176,724
Australia	.....	.....	1,090	37,680
South America	100	3,000	1,066	32,059
New York	270	7,500	800	25,500
Japan	.....	.....	530	15,030
New Zealand	.....	.....	85	2,444
Central America	3	85	45	1,212
British Columbia	.....	.....	19	552
Honolulu	.....	.....	1	28
Totals	2,425	$69,846	27,922	$820,002
Same time in 1881	1,643	47,394	26,874	778,740
Increase this year	782	$21,532	1,048	$41,262

—*San Francisco Commercial Herald.*

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Oct. 20.

Anthracite.

There is very little if any change in the anthracite trade. While some of the companies profess to be doing so well that they have little coal to sell, one of them declining further orders, other producers are certainly not as well off, and we hear of sales at figures below September circular prices, which, however, on the whole fairly represent the market. East and West, the trade is unsatisfactory on account of heavy stocks, and here business has not yet received the stimulus of heavy buying by consumers.

Freights to the East are firmer, and range from $1.10@$1.15 to Boston, and 85@90c. to Providence.

According to Mr. Jones's official statistics, the tonnage of the several carrying companies for September aggregated 2,558,443 tons, being a decrease as compared with the corresponding month last year of 29,775 tons. The tonnage of the different companies was as follows: Philadelphia & Reading, 644,542; Lehigh Valley, 492,361; Central Railroad of New Jersey, 351,815: Delaware, Lackawauna & Western, 400,313; Delaware & Hudson Canal, 282,097; Pennsylvania Railroad, 227,876; Pennsylvania Coal Company, 128,608; New York, Lake Erie & Western, 30,831. The stock of coal on hand at tidewater shiping points, September 30th, was 513,934 tons; on August 31st, 603,042 tons; a decrease of 89,108 tons.

The production of anthracite for the week ended October 14th was 707,487 tons, as compared with 626,931 tons the previous week, and 640,781 tons for the corresponding week of 1881. The total product from January 1st to October 14th was 22,365,125 tons, as against 21,704,951 tons for the like period of last year, showing an increase this year of 660,174 tons.

Bituminous.

The bituminous coal trade has been in an unusual state of excitement during this week, the events of the past few days having thrown a very strong light upon the relations between late officials of the Pennsylvania Railroad and the mining companies of the Clearfield region. The Baltimore & Ohio Railroad, on behalf of its coal trade, made a demand upon the Pennsylvania road to suspend the special contracts for the carrying of bituminous coal to tidewater, by means of which Clearfield shippers had gained important advantages in this and in Eastern markets. This, it is stated, led to an investigation by the recently appointed officers of the Pennsylvania Railroad, which, it is claimed, showed that the company carried the coal below cost. It has made the announcement that all private contracts between shippers and the late officers of the Pennsylvania Railroad Company are abrogated, and that full schedule rates are restored. It is not our province to enter into the question whether the railroad company has a legal right to repudiate these contracts, or to inquire upon what grounds it proposes to justify its action. It is hinted that these contracts were of a magnitude little suspected by any one in the trade. Suffice to say, that probably the majority of the shippers of Clearfield coal, who had secured contracts for delivery of coal to large consumers here and in the East, will now be forced either to pay the schedule rate or to suspend the delivery of their coal. What the outcome will be, it is difficult to forecast; the immediate effort has been to force most of the Clearfield shippers out of the market, and few of them have any coal to sell, needing all they have or can get to fill their contracts. Naturally, those of the Cumberland companies which ship over the Pennsylvania road are also forced to pay full schedule rates. The result is a stiffening of the price of bituminous coal, the market being now entirely in the control of the Cumberland companies. We quote Cumberland coal, alongside, $4.75@$4.85.

STATISTICS OF COAL PRODUCTION.

Comparative statement of the production of anthracite coal for the week ended October 14th, and years from January 1st:

TONS OF 2240 LBS.	1882.		1881.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co.	80,428	2,718,724	70,808	2,783,040
D. L. & W. RR. Co.	112,608	3,531,857	98,417	3,303,491
Penna. Coal Co.	35,805	1,097,886	37,550	1,079,441
L. V. RR. Co.	33,294	849,147	37,301	898,283
P. & N. Y. RR. Co.	3,940	150,997	2,771	77,057
C. RR. of N. J.	50,751	1,788,257	45,131	1,809,672
Penna. Canal Co.	15,365	392,128	15,282	356,764
	332,191	10,529,014	299,239	10,307,748
Lehigh Region.				
L. V. RR. Co.	119,781	3,725,095	108,962	3,466,643
C. RR. of N. J.	56,699	1,732,740	48,461	1,677,819
S. H. & W. B. RR.	1,188	40,983	.....	9,386
	177,668	5,498,818	157,423	5,153,848
Schuylkill Region.				
P. & R. RR. Co.	168,746	5,302,851	157,902	5,369,455
Shamokin & Lykens Val.	27,104	987,602	24,461	824,254
	195,850	6,290,453	182,363	6,193,709
Sullivan Region.				
St Line&Sul.RR.Co.	1,778	46,840	1,756	49,646
Total	707,487	22,365,125	640,781	21,704,951
Increase	146,706	660,174	.....	.....
Decrease	.....	.....	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Total same time in 1877	15,268,007 tons.
" " " " 1878	12,930,285 "
" " " " 1879	20,402,038 "
" " " " 1880	17,769,941 "

The decrease in shipments of Cumberland Coal over the Cumberland Branch and Cumberland & Pennsylvania railroads amounts to 832,944 tons, as compared with the corresponding period in 1881.

Belvidere-Delaware Railroad Report for the week ended October 14th:

	Week.	Year. 1882.	Year. 1881.
Coal for shipment at Coal Port (Trenton)	3,891	73,885	56,864
Coal for shipment at South Amboy	17,475	655,114	576,519
Coal for distribution	19,470	569,569	548,112
Coal for company's use	3,894	103,188	88,498
Total	44,730	1,401,756	1,269,993
Increase	.....	131,763	.....
Decrease	.....	.....	.....

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